THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—34TH YEAR. SYDNEY, SATURDAY, FEBRUARY 22, 1947. No. 8.

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— Page.
Centenaries of 1946, by Harvey Sutton 225
Some Rules for the Employment of Local Analgesia in the Treatment of Somatic Pain, by Michael Kelly 235
Heterospecific Pregnancy: III. The Rh Factor and Repeated Miscarriages, by P. M. de Burgh, Ruth A. Sanger and R. J. Walsh 239
The Thiamin and Riboflavin Content of Some Commercial Vegetable and Yeast Extracts, by Catherine E. Francis 239

REPORTS OF CASES—
Spontaneous Rupture of the Spleen in Malaria, by Wallace Pullen 241
Dementia Paralytica Occurring in Chronic Schizophrenia, by A. T. Edwards, M.B., D.P. 243

REVIEWS—
Chemistry for Medical Students 244
"Anatomical Eponyms" 244
Florence Nightingale 244

LEADING ARTICLES—
A Call to Duty 245

CURRENT COMMENT—
Tuberculosis in Greece 246
The Preservation of Liquid Plasma 246
The Psychology of the Tuberculous 247
Medical Photography in Great Britain 247

ABSTRACTS FROM MEDICAL LITERATURE—
Medicine 248

BRITISH MEDICAL ASSOCIATION NEWS— Page.
The Ophthalmological Society of Australia (British Medical Association) 250
Notice 251

CORRESPONDENCE—
An Observation on Eclampsia 251
Australian Medical Officers for the Army of Occupation in Japan 252
The Zoological Position of Man 253
The Treatment of Thyreotoxicosis by Concurrent Administration of Thiouracil and Iodine 254
International Congress of Pædiatrics 255

POST-GRADUATE WORK—
The Post-Graduate Committee in Medicine in the University of Sydney 255
The Melbourne Permanent Post-Graduate Committee 255

NOMINATIONS AND ELECTIONS 256

AUSTRALIAN MEDICAL BOARD PROCEEDINGS—
Tasmania 256

OBITUARY—
William Christian Daish 256

THE FEDERAL MEDICAL WAR RELIEF FUND .. 256

BOOKS RECEIVED 256

DIARY FOR THE MONTH 256

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 256

EDITORIAL NOTICES 256

CENTENARIES OF 1946.

By HARVEY SUTTON,
Sydney.

Events in 1846.

IN the year 1846 many happenings seem worthy of notice.

The repeal of the Corn Laws (1846) meant the change over of England to free trade, to becoming a workshop and no longer a farm. The industrial revolution had reached its full momentum, providing plenty of jobs, while a cheap loaf helped nutrition. Among the investigations that led up to this momentous policy was Farr's study of "the influence of Scarcities and of the high price of wheat on the mortality of the people of England".

The Lancet, under Wakley as editor, exercised an important influence within and without the medical profession. The flogging of a soldier at Hounslow, at which 150 lashes were given, resulted in his death later from pneumonia. Erasmus Wilson found the deep muscles next the vertebræ in a state of pulp and the corresponding pleural surface greatly inflamed. Though the official report described the punishment as "without any degree of severity calculated to attract more than ordinary attention", Wakley's comments as coroner and the horror and disgust of the jury led to the dropping of these drastic official bashings.

The *Health of Towns Bill* (1846) set out to ensure an ample supply of water and better arrangements for sewers and drains, and the act for the removal of nuisances and for protection against epidemic diseases showed a desire for municipal cleanliness. The most important health enactment, however, was the act allowing local authorities to establish public baths and washhouses. This came about mainly from the pressure exerted by an "association for promoting cleanliness among the poor", which had founded in the East End of London (Whitechapel) model public baths and laundry. The charges were a penny for a cold bath and twopence for a hot one, while two hours' use of the laundry also cost twopence. As many as 932 baths were given in one day.

The year 1846 stands out as one of the most tragic in the whole history of Ireland, and had far-reaching effects on the future of that part of the British Isles. The potato crop was ruined by blight, and tens of thousands died of sheer starvation. It was indeed the last great famine to afflict any part of our race. Tens of thousands got away to America. The population of Ireland dropped from eight to five millions and has remained there ever since.

Dr. McCormack, of Buncrona, Donegal, tells us of the severity of the outbreak of land scurvy for which he blames the eating of diseased potatoes. Food, we are told, was not only deficient (that is, in amount) but unwholesome, and reminded the writer of similar experiences in India. The treatment prescribed was the taking of nitrated vinegar, mineral acids and bitters, cinchona wine and beer. Famine and typhus go hand in hand, a grisly pair, and epidemic typhus took a heavy toll of the medical profession in Ireland—at once a tragedy and a testimony to their self-sacrifice.

In *The Lancet*, tropical diseases in India and China were receiving close attention. An article on dysentery and hepatitis of India by E. A. Parkes is an example; there were also articles on disease in India by Geddes and by Wise. One paper on the effect of the climate of Chusan on European constitutions, by F. D. Walsh, sets forth a startling suggestion. As soon as boats anchored in Chusan harbour everyone got what Walsh euphemistically called the "Chusan trot". After discussing possible causes of this diarrhœa, he finally blamed the electric state of the atmosphere. The west coasts of land masses, he asserted, were electropositive, the eastern, electronegative. Hence the Negro and the Chinese were opposites, as is noted in the lack of hair and limited sexual passion of the Chinese.

Australia came into the picture in an interesting article by Richard Griffin of Norwich on the anatomy of the *Platypus anatinus*, especially in relation to its spur and mammary secretion.

Pure food received attention. Bowel trouble was blamed on verdigris—now a belief in our folk-lore, as the fear of aluminium vessels already is becoming.

The best illustrated article is by Bishop on deformities, while a paper by J. Wilson gives full details of the dissection of an artificially deformed foot from a Chinese lady.

A modern touch is given by a plea of Hughes Bennett for pathologists' posts at hospitals.

The Pathological Society of London was founded in 1846 with its striking motto: "*Nec silet mors*". Charles John Blasius Williams was chosen as its first president. He was of Welsh origin though born at Heytesbury, a devoted adherent of Laennec, and in large part at least designer of the modern binaural stethoscope. He did much to explain the causes of the heart sounds and murmurs. He was an authority on diseases of the chest. On becoming professor of medicine at University College, he found that the post-portem examinations were carried out in a shed without a water supply, and at once started a fund and built a proper theatre. His enthusiastic support of physiology and pathology as the basis of scientific medicine led to his launching the new society. He also became the first president of the New Sydenham Society. In 1846 Dr. Williams was able to produce a purified cod-liver oil that patients readily took. The remedy which Percival (1770) and Hughes Bennett (1843) had used, the original cod-liver oil, had a truly nauseating taste and smell, which only the strongest stomach could face. The modern purified remedy is by no means attractive to all adults, though, thanks to Williams, children can be fond of the neat oil and lick the spoon.

Medical politics attracted widespread interest. The main attack was on a proposed bill for the registration of legally qualified medical practitioners. "Hands off!" sums up the attitude of *The Lancet*. The delivery of Lawrence's Harveian Oration was the scene of extraordinary disturbance. The lecturer said he was "not worried by the cackling of geese", and held the floor. Vigorous attacks were made on the custom still existing by which well known doctors gave "puffs" for patent medicines. One quotation is from Horace:

Si quid novisti rectius istis.
Candidus imperti, si non his utere mecum.

(If you know anything better, share it openly. If not, use this with me.) A pill of aloes, scammony and colocynth, we are told, is:

The most poetical of all the purgatives,
So gently suited to the bowels of bishops
And compounded in mortars to the sound of music.

Of the curiosities may be noted Mr. Butterfield's "Alphabetical Speculum for Stammering", and the appointment of Dr. Ogle as professor of "clinemical" medicine at the University of Oxford.

The biography of Dr. Davis of University College, who died in 1841, is of interest. He had delivered Queen Victoria on May 24, 1819, and taught midwifery in twenty-seven years to 1,100 pupils. He was a strict contagionist and struck off his list any pupil who had been in attendance on a patient suffering from puerperal fever.

Other important events may be recorded.

In 1846 the marks of ancient glaciers were reported all over northern Europe, and Edward Forbes explained the distribution of northern plants on a glacial basis. The idea of an ice age thus gained acceptance and had profound effects on ideas about early man.

In the heavens Neptune was simultaneously seen by Leverrier and by Adams, while on earth Elias Howe took out a patent for the first sewing machine, one of the first labour-saving devices for the home—would that there were more!

Dechambre of Paris wrote a 41 volume encyclopædia of medicine (1846).

De Kay (1846-1849) wrote up the zoology of New York.

Angelo Dubini first found the *Ankylostoma duodenale* in the intestine. He described "electric" chorea (1846). Dubini's chorea is the myoclonic form of epidemic encephalitis.

Notable Work in 1846.

Notable work in 1846 was done by the following people: in medicine, by H. I. Bowditch, Bigelow, Esdaile, Green, Ritchie and Stokes; in pharmacy, by Procter and by Anderson (who found pyridine); in neurology and psychiatry, by Beck, Lelut, Requin, Romberg and Seguin; in medical jurisprudence, by Leichmeyer; in surgery, by Brodie, Forbes, Little, Liston, Parker and Teale; in gynæcology and obstetrics, by Kocks; in ophthalmology, by Cumming; in dermatology, by Eichstedt; in laryngology, by Green; in pædiatrics, by Coley; in pathology, by Bassi, Klencke, Leidy, Langstaff, Rokitansky and Virchow; in anatomy, by Hyrtl and Owen; in histology, by Hassall, Henle, Kolliker, Ludwig and Sharpey; in physiology, by Hutchinson, Müller, Valentin, E. H. Weber and Wild; in biochemistry, by Liebig; in biology, by Amici, Mohl and Nägeli; in statistics, by Mitchell and Quetelet; in the history of medicine, by Greenhill and Pruner.

Giovanni Battista Amici (1784 to 1860) was an Italian professor of mathematics, interested in astronomy. He improved the microscope, adding the immersion lens. In 1846 he clearly showed the way pollination occurred in the orchid, stimulating the egg cell to develop. Darwin followed this up in his "Fertilization of Orchids" (1862).

Agostino Bassi (1773 to 1856), a pioneer of bacteriology, studied muscardine or silkworm disease (*mal de segno*) for twenty-eight years. In 1836 he showed that a living vegetable cryptogamous parasite (*Botrytis paradoxa*) caused the disease. Pasteur confirmed Bassi's findings in 1865. In 1846 Bassi made the following statement: "While many if not almost all scientists believed and still believe that contagious materials are of a special kind, they are actually living substances." This was ten years before Pasteur.

Thomas Snow Beck (1814 to 1847), in a paper read before the Royal Society (1846), "On the Nerves of the Uterus", noted the link up of the thoracic sympathetic chain with cervical thoracic and first lumbar ganglia and also the branches to certain viscera.

Henry Ingersoll Bowditch (born in 1808 at Salem, Massachusetts, died in 1892), in 1832 journeyed from Harvard to study in Paris under Louis. In 1846 he wrote "The Young Stethoscopist or the Students' Aid to Auscultation", one of the best descriptions of early pulmonary tuberculosis ever written (Laurason Brown). A medical reviewer was disappointed only by its length—he wanted it longer! Bowditch's father had an hæmoptysis when he was thirty years of age (the year in which H.I.B. was born). After active symptoms had settled down he took a drive in an open buggy for several weeks through New England. At his death from cancer at the age of sixty-seven years the autopsy revealed a healed patch in the lungs.

Sir Benjamin Collins Brodie, F.R.S. (1783 to 1862), in his lectures illustrative of various subjects in pathology and surgery published in 1846, gave the first description of intermittent claudication in man. It had been noted in the horse by Boullay (1831). Before taking up surgery Brodie had done excellent work in physiology, such as that on the influence of the vagus on gastric secretion (1814). He was the first to operate on varicose veins (1814), and he reported Brodie's pile (1835), Brodie's abscess (chronic abscess of the tibia, 1832), hysterical pseudofracture of the spine and Brodie's disease, and chronic pulpy synovitis (1818).

Jacob Bigelow (1818 to 1890), professor of *materia medica* at Harvard University, gave in November, 1846, an onlooker's account of the first successful operation under ether anæsthesia (October 16, 1846).

J. M. Coley was the author of "A Practical Treatise on the Diseases of Children" (London, 1846). Coley realized the relation between arthritis and carditis in what is now known as juvenile rheumatism. Curiously, he said little about murmurs.

William Cumming (1812 to 1886), of the London Hospital, was one of the first to see the living retina. In 1846, while he was still a student, he noted, by shading

the eye of a fellow student, that he was able to see "a luminous appearance" at the back of the eye and realized its possibilities in diagnosis. It was the retinal reflex and the white light from the optic disk.

James Esdaile of Montrose (1808 to 1859) wrote in 1846 "Mesmerism in India and its Practical Application in Surgery and Medicine". In India on 261 occasions he had induced hypnotic anæsthesia for painless operations, but he did not get on so well with Europeans except in disease.

Sir John Forbes, F.R.S. (born in 1787 at Cuttlebrae, Banffshire, died in 1861), a naval surgeon, established *The British and Foreign Medical Review*, translated Laennec's works and attacked homœopathy (1846).

Carl Ferdinand Eichstedt, of Weimar (1816 to 1892), discovered in 1846 the microsporon furfur, the fungus associated with *pityriasis versicolor*.

In 1846 W. A. Greenhill published the best edition (according to Osler) of the works ("*Opera Omnia*") of Sydenham.

Horace Green (1802 to 1866) was born at Vermont, graduated at the University of Pennsylvania, studied under Trousseau (1837), and wrote a "Treatise on Disease of the Air Passages" (1846), one of the first studies limited to this subject. He originated the use of topical medication. He introduced laryngology into the United States and was one of the founders of the New York Medical College (1851), and *The American Medical Monthly* (1854). He was twice married, the marriages resulting in families of one and twelve children respectively.

Arthur Hill Hassall, a London physician (1817 to 1894), in 1846 published his "Microscopic Anatomy of the Human Body". He described in the thymus bodies of flattened epithelial cells around a central granular nucleated corpuscle—Hassall's concentric corpuscles.

Fredrich Gustav Jacob Henle (1809 to 1885), of Furth near Nuremberg, of Jewish descent, was a pupil of Johannes Müller, professor of anatomy at Zurich, Heidelberg and Göttingen. As an histologist he is unexcelled, having concentrated first on epithelium, then on the vasomotor mechanism. A whole series of structures bear his name—ampulla (*vas deferens*), band (aponeurosis of the transversalis), cells (*tubuli seminiferi*), fenestrated membrane (elastic fibres, *tunica intima*), fibrin (spermatic fluid), fissures (heart muscle), glands (palpebral conjunctivæ), hair outer layer, inner root sheath, ligament (conjoined tendon), membrane (*lamina basalis*), nervous layer (internal layer of the retina), reaction chromaffin (affinity for chromium salts of the medullary cells of chromium acetate), sheath (endoneurium), spine (*supramastoid* fossa), and descending and ascending uriniferous tubules of the kidney which form Henle's loop near the apex of the pyramid. In his "Handbook of Rational Pathology" (1846 to 1853) Henle emphasized the duty of the doctor to practise preventive medicine. His "Handbook of Systematic Anatomy" (1866) simplified nomenclature. One of his best known writings is his monograph "On Miasma and Contagia" (1840), which presented clearly the idea of a living microorganism as a cause of disease.

Josef Hyrtl, a Hungarian (1810 to 1894), became professor of anatomy in Vienna and brought out "*Lehrbuch der Anatomie des Menschen*" (1846), a most successful and popular textbook by the most successful, the most inspiring and the most popular teacher of anatomy of the day. Strange to say, the first twenty editions had no illustrations, but relied on the sheer interest of style and scholarship to drive home the facts. In the English medical literature, Charles Bell, Arthur Keith and F. Wood Jones have provided examples of the value of similarly readable books on anatomy.

John Hutchinson (1811 to 1861) invented the spirometer, and by means of it was able to work out the full functional activity of the chest in breathing, which he called "vital capacity" (1846). He discussed the variations found in disease.

Philip Friedrich Hermann Klencke (*1813 to 1881*) showed in 1846 that tuberculosis could be transferred through milk. Giving cow's milk by intravenous injection, he produced "*Scrophelkrankheit*" (tuberculosis) in a rabbit. Villemin in 1868 conclusively demonstrated that human tuberculosis was a communicable infection, and successfully inoculated guinea-pigs and rabbits with sputum, with a miliary tubercle and with caseous material. Klebs in 1873 experimentally produced tuberculosis in cattle by feeding them with tuberculous material. Cohnheim, by means of inoculation into the anterior chamber of the rabbit's eye, proved the unity of tuberculosis. All this was done before Koch isolated the causative organism (1882).

Joseph Kocks was a German surgeon (1846); Kocks's operation is designed to correct prolapse or retroversion of the uterus. The base of the broad ligament is shortened by the vaginal route.

Albert von Kölliker of Switzerland (1817 to 1905) was professor of anatomy at Zurich (1846), a master in histology and embryology. In 1846 he confirmed the finding of smooth muscle in the wall of blood vessels, and published the first text-books on microscopic anatomy and on human histology. He made extensive contributions to zoology.

Carl Friedrich Ludwig (1816 to 1895), a Hessian by birth, professor of anatomy and physiology at Marburg, Zurich, Vienna and finally Leipzig, began in 1846 a professorial life story of fifty years during which he became the greatest of all teachers of physiology. He created a school and trained and inspired a series of leading investigators in physiology and pharmacology. He is specially known by his theories of the secretory process of the kidneys and salivary glands, and for his outstanding studies of the work of the heart and circulation. Few men have ever been so greatly admired by those who worked under them.

Joseph Leidy (1823 to 1891), of Philadelphia, in 1846 was the first to find *Trichina spiralis*, now called *Trichinella*, in hogs. He described hookworm in cats (1886) and parasitic amœba. As professor of anatomy at Pennsylvania, he became the greatest naturalist of the day in America. He was singularly observant and had an original turn of mind. He was an authority on comparative osteology, fossils and parasites. He even studied cancer in subcutaneous transplants.

Lelut wrote in 1846 "*L'amulette de Pascal*", an important psychiatric study of the history of hallucinations.

Justus von Liebig of Darmstadt (1803 to 1873) initiated the qualitative study of metabolism (*1842*), examining everything taken into and passing out of the body. In *1846 he discovered tyrosine.*

In December, 1846, Liston, the leading surgeon at University College Hospital, London, performed his first operation—an amputation of the thigh—on a patient under ether anæsthesia. Everyone was excited. Liston told the students: "We are going to try a Yankee dodge for making people insensible." When he had finished he summed up the situation thus: "This Yankee dodge, gentlemen, beats mesmerism hollow!" In the dispute on priority as to the use of ether, Oliver Wendell Holmes, when asked which name he would accept as worthy of the distinction of first using it as an anæsthetic, replied: "Ether." (Either.)

Charles Ritchie (died in 1878), in discussing the continued fevers and the generic distinctions from typhus, first used (1846) the term enteric fever.

Hugo von Mohl, botanist, of Stuttgart (*1805 to 1872*), gave the name "protoplasm" to the fluid contents of the vegetable cell (*1846*). Apparently Purkinje had invented the term in 1839, using it for the germinal material of the embryo. Cohn, in 1850, asserted the similarity of the animal and the vegetable cell content, and Schultze in 1861 proved them to be identical.

Henry Marshall (*1775 to 1851*) wrote his "Military Miscellany" (1846), which attracted widespread interest and produced far-reaching results. He thus became the founder of military medical statistics. His "Observations on the Abuse of Spirituous Liquors by European Troops" led Lord Hardinge to abolish indiscriminate issues.

Johannes Müller (1801 to 1858), of Coblenz, was a great naturalist as well as a great physiologist. In 1846-1852

appeared his studies of the echinoderms. His name has been given to the duct or anal opening into the embryonic cloaca, to the capsule of the glomeruli in the renal cortex (also known as Bowman's capsule), to the *ganglion superius* and to Müller's experiment (forced expiration being followed by an inspiratory effort with mouth and nose held; the idea is to increase the negative pressure inside the chest). Müller contributed greatly to the acceptance of the cell theory (1839) and confirmed the Bell-Magendie law (1831), and his "Handbook of Human Physiology" (1833 to 1840) discussed projection of sensation, and the law of specific nerve energy. Not only did he write a great textbook, but for years he edited *Müller's Archiv*. He held that no one could be a psychologist without being a physiologist.

Karl von Nägeli (1817 to 1893), by microscopic studies, threw light on the sexual process in plants. In 1846 he saw on the prothalli of ferns free swimming spiral objects later recognized as the male elements, spermatozoids. He watched the process of cell division in the Algæ with their transparent living substance (1846). He proved that living material was nitrogenous. Bacteria were grouped by him as schizomycetes because of their reproduction by fission.

Sir Richard Owen (1804 to 1892), born in Lancaster, was one of our links with the great John Hunter, for he was his son-in-law and worked with William Clift, Hunter's secretary. After Hunter's death he edited the posthumous works and devoted most of his life to the Hunterian collection. In 1846 he began his series of monographs in British fossil vertebrata (1846 to 1884), and described *Dinornis*, the New Zealand moa. He published the first description of *Trichina spiralis* (1835) in the *Transactions of the Zoological Society of London*. He helped to found the Royal Microscopical Society.

Willard Parker (1800 to 1884), of Francistown, New York, was linked with Drake and Gross on the staff of the medical department of Cincinnati College, Ohio, and later with the medical school at Syracuse University. He was one of the most daring of those who sought to cure aneurysm by arterial ligation. He tackled subclavian aneurysm by ligating the left subclavian artery inside the scalenus together with the common carotid and vertebral arteries (death occurred forty-two days later). He was the first (1846) in America to perform cystotomy for inflammation and rupture of the bladder.

In 1846, William Procter, junior, of Philadelphia, became the first professor of pharmacy in America.

Pyridine was found in 1846 by Anderson in fetid liquor from distilling bones; it has since been found in coal tar.

Franz Pruner, a German physician (1808 to 1882) became professor of anatomy at Cairo University and director of the Kasr-el-Aisni hospital. For his work against plague and cholera he was made a bey. He wrote on the epidemiology of diseases of the Orient. In 1846 he published a treatise on "Remains of the Ancient Egyptian Races of Mankind", and continued for years these ethnological studies.

Lambert Quetelet (1796 to 1876), a Belgian astronomer and statistician, statistically investigated the average man, both physically and intellectually (1835-1846), and did much to establish modern vital statistics.

Requin, French neurologist and pathologist, published his "*Eléments de pathologie*" in 1846. He preferred the term "progressive general paralysis" for general paralysis of the insane, as he found patients without mental symptoms. He also studied hypertrophic cirrhosis of the liver.

Moritz Heinrich Romberg (1795 to 1873), of Meiningen, professor at Berlin University (1838), completed (1840-1846) his "*Lehrbuch der Nervenkrankheiten*", the first thorough treatment of neurology as a subject. In it is recorded the failure of tabetic ataxics to stand still with their eyes shut, the well known Romberg's sign. He also noted "ciliary neuralgia".

Carl von Rokitansky (1804 to 1878), of Bohemia, probably holds the individual record of over 100,000 post-mortem examinations. Between October 23, 1827, and March, 1866, he had written up 30,000. His pathological anatomy was first class, as witness his descriptions of arterial disease, defects of the septum of the heart, acute yellow atrophy, and spondylolisthesis, in his "*Handbuch der pathologischen Anatomie*" (1842-1846). His chemical theories were criticized by Virchow, as were his ideas on stases and crases. He was the founder of the preeminence of Vienna in the late nineteenth century.

Edouard Séguin, a French psychologist and a pupil of Itard and Esquirol, made a success of the training of feebleminded children, on which he worked from 1837 onwards. His work was recognized by his appointment as instructor at the Bicêtre Hospital in Paris and by the Academy of Sciences in America, where was invited to set up several schools. He published his methods (1846) in his treatise on idiocy. Madame (Dottoressa) Montessori, impressed by their scientific thoroughness, adapted them to the needs of normal children with remarkable success. Miss Simpson, at Blackfriars, Sydney, further adapted these methods to Australian infant class work, with admirable results.

William Sharpey (1802 to 1880), born at Arbroath, Scotland, is probably the first Englishman to devote his life work to physiology alone. He taught at University College, London. In 1846 he described, in "Quain's Anatomy", the fibres in bone named after him (fibres of Sharpey), and devoted much time to the study of the ossification process.

William Stokes (1804-1878), of Dublin, with Graves, placed the Dublin clinical school on the map. William Stokes was the son of Whitley Stokes, and succeeded him as Regius Professor of Medicine in 1845. His father's name appears in Cheyne-Stokes respiration, described in 1818. In 1846 William Stokes described the strangely slow pulse of Stokes-Adams disease, shown to be due to heart block. Robert Adams (1791 to 1875) had already described heart block in 1826. Stokes wrote on diseases of the chest (1837) and on diseases of the heart and aorta (1854).

Thomas Pridgin Teale (1801 to 1868), of Leeds, published a valuable study on abdominal heria (1846). His name is best known by his amputation of the forearm in its lower (distal) half, or of the thigh using a long posterior and a short anterior rectangular flap. In the leg he reversed this, using a long anterior rectangular flap and a short posterior flap. He believed in Broussais's idea of spinal irritation as the cause of many diseases.

Ludwig Traube, of Silesia (1818 to 1887), was of Jewish origin. He began a series of studies in experimental pathology. His initial investigation (1846) was on the effects of vagal section on the lung and the disorders this brought about. His clinic at the Charité Berlin became internationally famous. He was one of the first to use the clinical thermometer (1850). In physiology his name appears in the Traube-Hering curves, in which the blood pressure varies rhythmically with the respiratory movements.

G. Valentin wrote a treatise on physiology in 1846.

Rudolf (Ludwig Karl) Virchow (1821 to 1902), the great cellular pathologist, wrote on embolism, "*Die Verstopfung der Lungenarterie und ihre Folgen*" (Berlin, 1846), perhaps his greatest personal discovery. The paper originally appeared that year in Traube's *Beiträge zur experimentellen Pathologie und Physiologie*. In 1846 he discovered the neuroglia cells.

F. Wild, of Heidelberg, in a study of peristalsis of the œsophagus and its effect on that of the stomach and intestines (1846), carried out the first perfusion of the isolated heart.

Ernst Heinrich Weber (1795 to 1878), professor at Leipzig of anatomy (1821 to 1871) and physiology, was the eldest of a trio of professional brothers who were leading investigators a hundred years ago. Ernst Heinrich and his brother Eduard Friedrich had already (1825) exactly measured the velocity of the pulse wave, and in 1845 established the inhibitory action of the vagus and localized its centre. In 1846 Ernst Heinrich Weber published his masterpiece on the touch and temperature sense and their measurement. This included Weber's law that sensation increased by arithmetical progression as the stimulus

increased geometrically; this was stated later by Fechner as follows: "Intensity of sensation varies with the logarithm of the stimulus." This study of sensation gave birth to modern experimental psychology. Ernst Heinrich's name is given to Weber's paradox, which states that when an overloaded muscle is stimulated it elongates instead of contracting. It is also given to Weber's test for indican, hydrochloric acid being added to the urine and the mixture being shaken with ether (reddish with bluish foam), and to Weber's test for hearing, a vibrating tuning fork being used in the mid-line of the head to find out which ear hears the sound best by bone conduction. This will be the affected ear if the condition is due to middle ear disease, but the normal ear if the inner ear is defective.

Births in 1846.

The following people, famous in the specialties named, were born in 1846: in medicine, Allchin, Dechambre, Dubini, Lucas, Welander; in neurology, Beck, Putnam, Tarkakhanov; in surgery, Langenbuch, Madelung, Riedel; in pathology, Arloing, Bizzozero, Bruns, Curschmann, Eppinger, Greenfield, Marchant; in ophthalmology, Hubbell, Landolt; in laryngology, Eysell; in dermatology, Fox; in gynæcology, Baer, La Torre, Leopold, Pozzi; in biology, Beneden, De Kay, Kowalevsky, Mohl; in physiology, Beck (also famous for works in neurology), Exner, Fleischl, Mosso; in biochemistry, Baumann; in tropical medicine, Bailey, Eysell, MacGregor; in the history of medicine, Fossell, Gasquet, Hubbell, La Torre (also remembered for work in gynæcology), Schelenz.

Sir William Henry Allchin, a London physician (1846 to 1911), wrote "*Methodus Medendi*", a sketch of the development of therapeutics (1906).

Saturnin Arloing (1846 to 1911) wrote on tuberculosis and certain septicæmias in Paris (1892).

Benjamin Franklin Baer, New York surgeon (1846 to 1920), first described the operation for fibroid tumours of the uterus by supravaginal hysterectomy without ligature of the cervix (in the *American Journal of Obstetrics and Gynecology*, 1892).

Wellesley C. Bailey was born in 1846 at Abbeyleix, Ireland, and trained at Kilkenny College. He went in 1869 as a missionary to the Punjab, where he worked with the American Presbyterian Mission at Ambala and looked after a group of 40 lepers. He was the founder of the Mission to Lepers in India and the East, and made the welfare of the leper his life work for over forty years and gained international support. The release of offspring of leprous parents before they reach the age of three months is largely the result of his studies.

Eugen Baumann (1846 to 1896) together with Roos showed the presence of iodine in organic combination in the thyreoid (1895-1896) as thyreoidin. This led to the later isolation of thyroxin. He evolved sulphonal "disulfone" as a new hypnotic (1886).

Edouard van Beneden, of Liège (1846 to 1910), gave the first full description of the segmentation and early development of the mammalian ovum (Brussels, 1875 and 1876). In 1877 he noted the centrosome independently of Flemming and Boveri, and showed that the chromosomes (of which he shared the discovery) came equally from both parents.

Guilio Bizzozero of Milan (1846 to 1901), an Italian physician, described the blood platelets (1882) already recorded by Donné (1842), by Schultze (1865) and by Osler (1873). He gave them their present name and noted their association with coagulation. He also described the hæmatoblast (Bizzozero's red cells), and nucleated red blood corpuscles, and was the first to show that the nucleus-free erythrocytes had lost a nucleus previously present. The hæmatopoietic function of red bone marrow in the spongy bone was indicated by him. He was the leading pathologist in Italy in the late nineteenth century.

Paul von Bruns, of Tübingen (1846 to 1916), wrote "*Das Rankenneuron*", the first report on plexiform neurofibroma.

Heinrich Curschmann, a German physician (1846 to 1910), closely studied bronchial asthma. He described Curschmann's spirals—spirally twisted masses of mucus seen under the microscope in the sputum during an asthmatic attack. Curschmann's disease is frosted liver.

Hans Eppinger of Berlin (1846 to 1916) wrote on the pathogenesis (histogenesis and ætiology) of aneurysm.

Siegmund Exner of Vienna (1846 to 1926) was a physiologist whose name has been given to a plexus of horizontal axis cylinders found in the superficial layer of the cerebral cortex, and also to a nerve twig from the pharyngeal plexus to the crico-thyreoid membranes.

Adolf Eysell was born in 1846 near Cassel and trained at Würzburg and Halle. He served as a medical officer in the Franco-Prussian war. In 1875 he set up in Cassel as an ear, nose and throat specialist, and with Schwartze described the modern form of the mastoid operation. From 1900 onwards he wrote a series of brilliant papers on entomology, especially mosquitoes, and associated parasitological problems, making an outstanding contribution to tropical medicine.

Ernst von Fleischl von Marxow of Vienna (1846 to 1891) was a physiologist whose instrument (hæmometer) is used for estimating the percentage of hæmoglobin in the blood. The colour of a measured dilution of blood is compared with a wedge of ruby glass under water.

Viktor Fossel (1846 to 1913) wrote an important study on the history of medicine (1909) including astrology and venesection in the Middle Ages. He also wrote the history of the medical faculty in Graz (1863 to 1913).

George Henry Fox of New York (1846 to 1937) was a professor of dermatology. Named after him is the Fox-Fordyce disease, a pruritic papular eruption of the axilla, nipples and pubes, due to dysfunction of apoccrine glands (1902). Fox published an important atlas on skin diseases.

Francis Aidan (Cardinal) Gasquet (1846 to 1929) described in 1893 the Black Death of 1348.

William Smith Greenfield (1846 to 1919) was born at Salisbury, trained at University College, and qualified in 1872. After post-graduate hospital work he became professor of pathology of the Brown Institution (1878), and in 1881 he went on to Edinburgh, where he spent the rest of his life teaching clinical medicine as well as pathology. His studies in wool sorter's disease anticipated Pasteur's vaccination against anthrax. His chief writings were on renal pathology, micrococci and practical pathology; but his best monument is the number of his pupils who have reached high rank in the medical profession.

Alvin Allace Hubbell of the United States of America (1846 to 1911) published in 1908 "The Development of Ophthalmology in America (1800-1870)".

Alexander Kowalevsky, a Russian morphologist (1846 to 1901), was professor at Petrograd. His work on vertebrate embryology was based on *Amphioxus* and his name is sometimes given to the neurenteric canal. He described the development of ascidians.

Felice La Torre (1846 to 1923) published in 1917 an important collection of historical illustrations of the uterus.

Christian Gerhard Leopold (1846 to 1911), a German physician, is responsible for the "law" that in anterior insertion of the placenta, the Fallopian tubes project backwards, while in posterior insertion they project forwards.

Edmond Landolt (1846 to 1926), born in Switzerland, was an occulist in Paris and wrote a capable treatise on physiological optics (1880-1889), and reported on small bodies of unknown nature between the retinal rods and cones (Landolt's bodies). His name is also given to Landolt's optotype, which uses open "C" and is a better version than Snellen's test type for children. Dr. Gertrude Halley and Dr. Hogg adapted it for use in Australia, and found it best suited to young children and illiterates.

Carl Johann August Langenbuch (1846 to 1901), a German surgeon, reported the first successful removal of the gall-bladder (1882).

Richard Clement Lucas (1846 to 1913), an English surgeon at Guy's Hospital, noted the sign of abdominal enlargement in rickets.

Otto Wilhelm Medelung (1846 to 1925) described the deformity of the wrist "*radius curvus*", and the disease diffuse symmetrical lipomatosis. He noted also (Madelung's sign) in increase in difference between the axillary and rectal temperatures in purulent peritonitis.

Sir William MacGregor (1846 to 1919), born at Towie in Aberdeenshire, was the eldest son of a farm labourer. He began an arts course at King's College, Aberdeen, probably intending to become a teacher, but soon changed over to medicine; he studied first at Glasgow and then at Aberdeen, qualifying in 1872. He also saw work at Berlin, Florence and Paris. Chest trouble drove him to the Seychelles (1873), and in 1874 he was surgeon at Port Louis, Mauritius. In 1875 he became Chief Medical Officer of Fiji, and before 1878 had taken up administrative work as High Commissioner of the Pacific. As Colonial Secretary to the Fiji Commission he sat at the first federal council of Australasia (1886). This led to his appointment (1888) to British New Guinea. He was knighted (Knight Commander of the Order of Saint Michael and Saint George) in 1889. In 1899 he took charge at Lagos, and in 1904 became Governor of Newfoundland, where he attacked the problem of tuberculosis. From 1909 to 1914, as Governor of Queensland, he came into intimate contact with medical and scientific work. In 1911 he was elected first Chancellor of the University of Queensland which he had helped to found. During the first world war he was used freely by the Colonial Office for advice on Pacific problems. He died on July 3, 1919. Sir William MacGregor won the right to be looked on as one of our leading workers in public health and welfare. He established law and order among the head-hunters of Papua, protected them against the vices of the white and yellow men, alcohol and opium, and stopped the overlapping of missionary effort. In anthropology, in language and in exploration, his work is notable. In his African period he met Ross, and he was perhaps the first official to recognize the real merit of the mosquito work of this brother Scot and doctor. Ross was rather a prickly person and allergic to officials. MacGregor in many ways gave Ross his chance to demonstrate the preventive value in malaria of mosquito control. At Ismailia he and Ross joined forces in 1892. Ross took over the laboratory aspects, MacGregor that of the health officer. They were both puzzled. No surface water could be seen in this sandy area. MacGregor walked all over the place looking in vain for breeding places, till his foot kicked against a stone slab; when this was lifted a sump with abundant larvæ was found. Every house had such a sump, and due attention with kerosene did the rest. MacGregor constantly brought up at medical meetings in Brisbane the necessity for attention to tropical health and disease in general and to mosquito control in particular. His presence and experience helped the establishment and early efforts of the Australian Institute of Tropical Medicine established at Townsville in 1911 and later merged into the School of Public Health and Tropical Medicine at Sydney. Among the many honours he received, none are more striking than those he won by personal effort—the Watson Gold Medal, the Albert Medal (awarded by Queen Victoria), the Clarke Gold Medal (awarded by the Government of the Commonwealth of Australia) for saving life at sea, and the Mary Kingsley Medal for tropical achievements. He was made a Privy Councillor in 1914. As an administrator of native peoples he is described as standing head and shoulders above others in similar posts in the Empire. As proconsul, educationist, anthropologist and health administrator he reached the highest levels of achievement.

Felix Marchand (1846 to 1928), a German pathologist, described accessory adrenal bodies in the broad ligament. He also noted the perithelial cell or wandering cell. He was very interested in experimental teratology.

Angelo Mosso of Milan (1846 to 1910) made his first physiological studies on fatigue by means of the ergograph for testing its production in voluntary muscles (1895). By injection experiments he was able to show the effect of the toxic products of muscular contraction. "*La fatica*" was published in Milan in 1891. He had already studied fear ("*La paura*", 1884) and sleep, both normal and artificial. He also invented an apparatus for measuring the blood pressure in the digital arteries. In his laboratory on Monte Rosa he worked on the effects of high altitudes on respiration. He took it to be due to acapnia, lack of carbon dioxide, but Haldane and others showed the effects to be due to lowering of the oxygen pressure. Later these discussions formed the basis of recent studies on the needs of high flying. Mosso also proved the reflex basis of deglutition.

Samuel-Jean Pozzi (1846 to 1918), a Parisian gynæcologist, described Pozzi's syndrome in endometritis (backache and leucorrhœa without enlargement of the uterus). A skilled oviariotomist, he worked out many surgical techniques and wrote many papers on abnormalities *et cetera*. He was killed by an insane patient because of an alleged grievance.

James Jackson Putnam (1846 to 1918) described the complication of pernicious anæmia of subacute cord degeneration and the anatomical changes in poliomyelitis. He supported the Freudian methods in neurological investigation. He was lecturer on neurology at Harvard (1872).

Bernard M. C. L. Riedel (1846 to 1916), professor of surgery at Jena, described ligneous thyreoiditis—Riedel's disease—and the special lobe—Riedel's lobe—extending down from the anterior margin of the liver external to the gall-bladder.

Hermann Schelenz (1846 to 1922) wrote an important history of pharmacy (1904).

Ivan Romanovich Tartakhanov (1846 to 1906), a Georgian from Tiflis, studied at the University of Saint Petersburg, and graduated in medicine in 1869. He was a physiologist, and wrote on hypnotism and venoms and on organotherapy, and undertook many experimental investigations such as that of psychogalvanic reflexes, using the telephone in electrophysiology.

Louis Albert Thaon (1846 to 1886) published researches on the pathological anatomy of tuberculosis (1873).

Edvard Welander of Stockholm (1846 to 1917) practised inunction for syphilis, using a flannel singlet spread with grey ointment.

Deaths in 1846.

The following well-known figures died in 1846: Auguste Bérard (1802 to 1846), a surgeon of Paris; John Bostock (1773 to 1846), a physician, of London; G. M. Burrows (1771 to 1846), a psychiatrist, of London; Joseph Constantine Carpue (1764 to 1846), a surgeon, of London; Charles Derosne (1780 to 1846), an apothecary, of Paris; George Langstaff (1780 to 1846), a surgeon, of London; Mathias Louis Mayor (1776 to 1846), a Swiss physician; James Marsh (1794 to 1846), an English chemist; John Scott (1798 to 1846), a surgeon, of London; Joseph Friedrich Sobernheim (1803 to 1846), a physician, of Berlin; John Thomson (1765 to 1846), a surgeon of Edinburgh; Giacono Tommasini (1768 to 1846), a pathologist, of Bologna; Benjamin Waterhouse (1754 to 1846), an American physician.

Auguste Bérard (1802 to 1846), a Parisian surgeon, described the arterio-venous aneurysm in the tissues outside the injured vein (Bérard's aneurysm). He wrote the first important treatise on parotid tumours (1841).

John Bostock (1773 to 1846), physician to Guy's Hospital, described *catarrhus æstivus* (hay fever, Bostock's catarrh) in a paper entitled "Case of Periodical Affection of the Eyes and Chest" (1819).

G. M. Burrows (1771 to 1846), a British psychiatrist, regarded mental phenomena as merely signs of a brain disease, and reported that nine out of ten patients were cured under his traditional methods of treatment (1820 to 1828).

Joseph Constantine Carpue (1764 to 1846), a London surgeon, wrote one of the pioneer works in electrotherapy, "An Introduction to Electricity and Galvanism" (1803). He established the high operation for stone by suprapubic incision (1819), and revived the Hindu operation of rhinoplasty using skin from the forehead (1816). He had great artistic ability.

Charles Derosne (1780 to 1846), a Parisian apothecary, isolated morphine from opium in 1803. However, it was

Serturner who worked out the chemical nature of morphine.

George Langstaff (1780 to 1846) wrote on cases of *fungus hæmatodes* (1817), and first recorded sarcoma of the prostate.

Mathias Louis Mayor (1776 to 1846), a Swiss surgeon, invented his hammer which, after being heated in boiling water, could be applied to the skin to produce a blister for counter-irritation. Corrigan's button, a disk or rounded button on a thick iron wire, was similarly used.

James Marsh (1794 to 1846), an English chemist, worked out the well known test for arsenic, in which the suspected fluid is added to zinc and dilute sulphuric acid solution in a Wolff's bottle. The hydrogen issuing from the delivery flame is lighted and directed against a cold glass or porcelain plate. The brown mirror or deposit indicates arsenic. The zinc must first be tested for arsenic impurity.

John Scott (1798 to 1846) was a surgeon on the staff of the London Hospital. He introduced Scott's dressing used in joint trouble, which consists of mercury ointment with wax, olive oil and camphor.

Joseph Friedrich Sobernheim (1803 to 1846), in his "*Praktische Diagnosis*" (Berlin, 1837), described acute idiopathic inflammation of the heart, and first used the term "myocarditis".

John Thomson (1765 to 1846) rose from being a silk-weaver's apprentice to high station as a surgeon. In 1804 he was appointed first professor of surgery to the Royal College of Surgeons, Edinburgh, and in 1808 the first professor of military surgery. After the Battle of Waterloo he did sterling work with the wounded. Later he applied unsuccessfully for the chair in medicine (1821), but later became first professor of pathology (1831). This triple occupation of chairs led to his being described as "the old chair maker" (Guthrie). His best work is "Lectures on Inflammation Exhibiting a View of the Doctrines of Medical Surgery". In this he opposed any divorce between medicine and surgery.

Giacomo Tommasini (1768 to 1846) was a professor at Parma (physiology and pathology) and later at Bologna. Originally a supporter of Rason, he later parted from him. Rason had advocated the extraordinary theories of Brown, extending his sthenia and asthenia into stimulation and counter-stimulation. Enormous doses of dangerous drugs were used. It was asserted that the theories of Brown and Rason had more victims than the French revolution.

Benjamin Waterhouse (1754 to 1846) was born at Newport, Rhode Island. Waterhouse, like Pasteur, was the son of a tanner. His father later became a judge of the Court of Common Pleas. His mother was niece of the famous Dr. Fothergill, and like him, a Quaker. Waterhouse lived in Fothergill's house (1775 to 1778), and then went to Leyden, where he qualified in 1781. Soon after his return to Newport, Harvard University invited him to form a medical school. So he became its first professor of medicine and founded its botanic garden. He began a collection dealing with mineralogy and botany. Lettsom in 1799 sent him Jenner's new book on "*Variolæ Vaccinæ*" (1798), and later he received Pearson's and Woodville's publications. In 1800, having procured vaccine threads from Haygarth of Bath, he successfully vaccinated his five-year-old son (July 8), the first vaccination to be performed in America. He discussed this (1800-1802) in two volumes—"A Prospect of Exterminating the Small-pox".

Births in 1746.

The following were born in 1746.

William Curtis (1746 to 1799), a botanist and apothecary of Alton and London, was apprenticed to his grandfather, a Quaker and surgeon-apothecary at Alton. He spent much of his time wandering over the countryside with the ostler of the local inn collecting plants and insects. This led to his transfer to London, where he qualified as an apothecary. Buying an acre of land in Bermondsey, he cultivated British plants and wrote "*Flora Londinensis*" (1775). The 435 illustrations were drawn and engraved by artists, and the 300 copies were hand-coloured by a team of thirty colourists. *The Botanical Magazine* profits paid for this; as Curtis put it: "The magazine brought him pudding, the 'Flora' brought him praise." In 1772 he was *Præfectus Horti* of the Society of Apothecaries' garden at Chelsea. He moved his own garden to Fulham Road to escape the smoke of the city, and Brompton Hospital is built on this site.

Jean-Louis Baudelocque, senior (1746 to 1810), was a prominent Parisian obstetrician, who studied the pelvic measurements in regard to the mechanism of labour. His pelvimeter was in general use. His name has been attached to the external conjugate diameter (Baudelocque's diameter) and the uterine contraction (Bandl's or Baudelocque's ring). The funnel-shaped pelvis was first described by him. He differentiated prolapsed from inverted uterus and made a lifelong study of the problem of prolapse. He studied the different positions of the fœtus in the uterus and the appropriate method of delivery. He set up his own school at the *Maternité* for post-graduate instruction. His "*Principes des accouchements*" (1775) brought him an international reputation.

Jacques A. C. Charles (1746 to 1823), a French physicist, worked out the law for the expansion of gases by heat, their volume at 0° Centigrade increasing one two hundred and seventy-third part for every rise of a degree Centigrade and decreasing in similar fashion on cooling.

François Chaussier (1746 to 1828) was a French surgeon, whose name has been given to Chaussier's areola (indurated tissue forming a ring round a malignant pustule), Chaussier's line (the median line, antero-posterior, of the *corpus callosum*) and Chaussier's sign (the severe epigastric pain noted before the onset of the eclamptic attack). He described cystocele and obdurator hernia. Chaussier was regarded as one of the leaders in legal medicine in France.

Andrea Comparetti (1746 to 1801) wrote a valuable treatise on the anatomy of the internal ear.

John Crawford (1746 to 1813), born in Northern Ireland, trained at Trinity College, Dublin, and at Leyden, and became a surgeon to the East India Company and settled in the Barbados. Later he went to Demerara and from there to Baltimore. With Waterhouse he was the first to introduce vaccination into America. As early as 1790 he independently set out the idea of universal parasitism and of the causation of disease by minute animalculæ.

J. F. L. Dietz (1746 to 1808) discussed the muscles of the uterus.

Johann Heinrich Pestalozzi (1746 to 1827), of Zurich, was a Swiss educationist and devotee of child welfare. From 1781 to 1803 he made outstanding advances in social medicine. His masterpiece was "Leonard and Gertrude". in 1798 he collected a group of refugee children for training. In 1801 came "How Gertrude Teaches her Children". Beginning with the easier and passing then to the more and more difficult, he relied first on observation and then on consciousness before speech. His central idea was the training of the whole man and the sympathetic understanding of the taught by the teacher.

Nicolas Noël of Rheims (1746 to 1832) used figure-of-eight sutures in lacerated perineum.

Danilo Samoilowitz (1746 to 1805) wrote a memoir on the inoculation of the pest with a description of three powders for fumigation against pestilence (Strasbourg, 1782).

Gaspard Vieusseux (1746 to 1814) first described cerebro-spinal meningitis, which he met with at Geneva in 1805.

Events in 1746.

In 1746 the first French tables of mortality were published by Antoine Deparcieux, in his "Essay on the Probable Duration of Human Life". This is the first estimate of the mean duration of life; Huygens (1669) and Halley (1693) had already studied the expectation of life, and Quetelet between 1825 and 1835 wrote papers on human vital statistics.

Pierre Fauchard wrote the first book on dentistry, "*Le chirurgien dentiste*" in 1732. In its second edition (1746) appears the first description of *pyorrhœa alveolaris*. In 1876 J. M. Riggs gave a detailed description of the disease and of its treatment by scraping.

In 1746 the first article on gynæcology to appear in America was written by Nathan Hale. The case was one

of extrauterine fœtation. A mass as large as a quart bottle could be felt, and two fistulæ were present at the navel. After these had been enlarged, death occurred in three weeks. The fœtus was in the left Fallopian tube.

In 1746 Antoine de Jussieu (1686 to 1758) first accurately described inflammatory lesions of the ovary, and Petche described rupture of the round ligament.

Albrecht von Haller (1708 to 1777), of Berne, was called "the great Haller". He was both versatile and profound. Amongst other activities, he found time to be a health officer, economist, head of his canton, poet, and founder of a philological seminary and of an orphan asylum. He showed how the intercostal muscles act in breathing in "*De respiratione experimenta anatomica*" (1746). Backed by the experimental approach, his physiological researches were ahead of the time; irritability of muscles and bile in fat digestion are examples. On botany, anatomy, surgery and medicine he constructed many volumes of bibliographies, and he wrote an excellent work on the history of medicine.

G. R. Hankoph in 1746 removed an ossified uterine tumour from a widow, aged eighty years.

Henri François Le Dran (1685 to 1770) in 1746 incised an ovarian cyst in preference to puncture. In 1730 he improved the operation of lithotomy, and he wrote on gunshot wounds (1737). In 1757 he discarded the humoral theory of disease.

The Leyden jar was first described by Pieter van Musochenbrock at the University of Leyden, Holland, in 1746. He had been trying to electrify water in a bottle which he held in his hand. A nail through the cork touched the water. After presenting the nail to an electric machine, he touched the nail and received a terrific shock from the stored up electricity. Bevis and Franklin showed that a metal layer, such as tinfoil, on each side of the glass worked best. A quart size bottle can be charged up to 20,000 volts and give a seven-inch spark. Later its condenser effect brought it into use in wireless telegraphy. At its discovery this phenomenon attracted widespread interest. The King of France saw a discharge passed through 180 guards. Later a line of Carthusian monks 900 feet long and linked each to each by iron wires were given a shock, all simultaneously giving a sudden spring into the air, much to the amusement of the onlookers.

Menghinus (1746) proved the presence of iron in the blood and its increase in the blood of animals which were given iron-containing foods.

Johann Karl Wilhelm Mohsen (1722 to 1795), of Berlin, was a leading researcher into medical historical records in the Royal Library (Berlin) (1746-1747). He wrote up the collection of medical medals there (1773-1781—medical numismatics).

The Fifth London Pharmacopœia (1746), a revision of the 1721 edition by Mead, Freind and others, got rid of many but by no means all of the weird ancient folk remedies. Moss from human skulls, virgin's milk, unicorn's horn, were dropped; but bezoar stone, wood lice, viper's mithridate and theriaca still remained. Glauber's salts, sweet spirits of nitre, syrup of squills and potassium acetate appeared for the first time, as did compound tincture of benzoin (also as traumatic balsam), a new name for Jesuit's drops. However, the destructive criticism by Heberden of theriaca and mithridate proved too much, and with various animal remedies they were dropped in the sixth edition of the pharmacopœia (1788).

In 1746 the theriaca of Philon of Tarsus (first century) was changed by substitution of syrup of poppies for honey, and renamed *Philonium Londinense*. From this is derived confection of opium. Theriacæ were great favourites of the ancients as protection against poisoning. They might contain 70 or more ingredients. In 1746 Evelyn records seeing the ceremony of making Venice treacle carried out with great pomp and circumstance in the presence of the city authorities and leaders of the medical faculty and of the practising physicians. The Grocers' Company in 1612 complained of adulterated imports: a "filthy and unwholesome baggage composition" was being brought into this realm as "Tryacle of Genoa, made only of the rotten garble and refuse outcast of all kinds of spices and drugs, hand overhead with a little filthy molasses and tarre to work it up withal". The College of Physicians therefore superintended its manufacture, and a ceiling price was placed on the product by regulation. As late as 1722 it was publicly prepared by the Society of Apothecaries.

Pilula Saponis Composita, first made official in the 1746 edition of the London Pharmacopœia as *Pilula Saponacea*, was adapted from a well-known patent pill, Matthew's pill or Starkey's pill. Starkey was the doctor who invented the prescription and Matthew the vendor.

Pharmacopœia Universale (1746, James), compiled officially by the authorities of Weimar, was the fourth revision of a book (1828) by Jourdan of Paris, and included forty different types of laudanum and twenty of paregoric. Paregoric was originally the *Elixir Asthmaticum* of the London Pharmacopœia of 1721. Paregoric is the Greek term παρηγορικός (soothing), and was originally attached to oratory.

Alexander Reid in 1746 gave the first description of lateral lithotomy as carried out by William Cheselden. Cheselden had been accused by John Douglas of plagiarism. Cheselden then gave up the high operation above the pubis which Douglas had described in 1720, and worked out the approach by the perineal route (1727).

Roesel von Rosenhof began his "*Insecten Belästigungen*" (1746-1761), which contains the original description of the amœba.

Foundations of institutes in 1746 were those of the London Lock Hospital, Small Pox Hospital, London, and Princeton College, United States of America.

Deaths in 1746.

Hermann Friedrich Teichmeyer (1685 to 1746) wrote in 1723 a text-book, the "*Institutiones*", for years the standard textbook on medical jurisprudence.

August Friedrich Walther (1688 to 1746), an anatomist, of Germany, has had his name allotted to the *ganglion coccygeum*, the *plexus cavernosus*, the minor sublingual ducts and a ligamentous band between the lateral malleolus and the talus. In 1723 he published an excellent description of the gravid uterus.

Births in 1646.

Gerard Blaes (Blasius) (1646 to 1682), of Belgium, professor of medicine at Amsterdam, wrote his great "*Anatome Animalium*" in 1681, the first systematic treatise on comparative anatomy. It gives a clear picture of the common layout of the bodily structures of vertebrates.

Gottfried Wilhelm von Leibnitz was born in 1646 and died in 1716. The Renaissance led thoughtful minds to question even theological beliefs, and the upholding of tolerant scepticism and intelligent doubt led to a breakaway from older concepts of mystery and magic. The geometry of Descartes and the calculus of Leibnitz and Newton were triumphs of pure reasoning, and formed a basis for sound knowleuge and liberal learning. The eighteenth century thus became the true beginning of modern science and medicine. Leibnitz based his philosophy of life on the idea of infinitely small indivisible units or rather forces, irreducible entities or monads, the essential basis of each person's intelligence and soul. Descartes dealt with man as a machine. C. F. Wolff applied the idea of the monad to his conception of growth and development—epigenesis, every organ or other structure of the body arising from forces in a formless or almost formless primary substance, later called protoplasm.

Johann Nicholas Pechlin (1646 to 1706) preferred doughnut-like pessaries to support the uterus while allowing semen to enter the cervix. He records the story of a woman whose curiosity was so great that she tasted her leucorrhœal discharge and found it very bitter.

James Yonge (1646 to 1721), in his "*Currus triumphalis e terebintho*" (Triumphal Chair of Turpentine, 1679) gives the first record of amputation by a flap method and other original ideas. He especially deals with methods of controlling hæmorrhage. This book is quite distinct from a book published in Toulouse in 1646, "*Currus triumphalis antimonii*", alleged to be written by a monk, Basil Valentine, who is said to have flourished in 1441.

This extols the value of antimony as a drug and criticizes the doctors of the time. However, it refers to syphilis and is thought to have been written by Tholde, an alchemist-chemist, about 1610.

Events in 1646.

Ulissi Aldrovandi (1522 to 1605), as the first director of the Bologna botanical gardens, the earliest university gardens, wrote a comprehensive account of biology in 13 volumes, which did not appear till eleven years after his death (1646-1648). He was held in high esteem by Sir Thomas Browne.

In 1646 Edward Arris, of the Company of Barbers and Surgeons, paid to the company the sum of £300 for the use of the "New Publique Anatomy". Later this was repaid, and he settled on the company an annuity of £30; but just before he died he redeemed this by a payment of £510. In 1655 John Gale gave an annuity of £16 for a similar purpose, and in 1745 the Company of Barbers and Surgeons took over these, and since 1810 the Arris and Gale lectures have been given annually.

Sir Thomas Browne (1605 to 1682) wrote one of his less famous yet wholly delightful works *"Pseudodoxia epidemica"*—"inquiries into vulgar errors" in 1646, ten years after his masterpiece *"Religio medici"*. Composed "by snatches of time", it is the fruit of his first-hand observation and experiment. He sought to hold the mirror up to Nature rather than blindly to follow tradition, and to rely on systematic study of the actual findings, not of the ancient authors. He determined to stand alone against the strength of opinion and to meet the Goliath and giant of Authority with contemptible pebbles and feeble arguments drawn from the scrip and slender stock. It is hard nowadays to realize that the "vulgar errors" he tackled were not the superstitious fancies of the ignorant but the universal beliefs of the educated. In zoology he gained much help from Aldrovandi. Buckle indeed considered that while the *"Religio medici"* belongs to mediæval thought, the *"Pseudodoxia epidemica"* marks the first step towards the exposure of blunders and of the vogue of blind credulity.

Ysbrand van Diemerbroek of Leiden (1609 to 1674) wrote an important monograph in 1646 on the plague, *"De peste"*, at Arnheim. His text-book on the "Anatomy of the Human Body" (1672) proved a popular success.

Johann Rudolph Glauber (1604 to 1688), of Carlstadt, published (1646-1648) *"Novum lumen chimicum"* and *"Pharmacopœia spagirica"*. Oliver Cromwell did not like the look of him, and held that he was an arrant knave; yet Glauber was a first-class all round chemist, analytical and manufacturing, and still curiously enough an alchemist. He asserted that he had found the philosopher's stone, but refused to part with the secret rather than "encourage the luxury, pride and godlessness of poor humanity". He extracted sodium sulphate from the water of an Hungarian spring. Later he got it more cheaply as a by-product when making hydrochloric acid by the action on sea salt of sulphuric acid. Hence he called it *"Spiritus Salis Marini Glauberi"* and later *"Sal Mirabile Glauberi"*. He realized that some plants increased nitrate in the soil. He distilled ammonium sulphate from bones, made ammonium chloride and sold *Sal Ammoniacum Secretum Glauberi*. He had two mottoes, *"Ora et labora"*, and a German variant of "If you want a thing well done, do it yourself".

The *Hauptweh* of Germany (1543-1546) is probably an early example of influenza which, like the *"trous galants"* of France, killed the young men—the "gallants", just as the 1919 epidemic proved so fatal to young adults.

In 1646 Athanasius Kircher described a remarkable wooden cup made from *Lignum nephriticum* (*Pterocarpus indica*), which gave to water a deep blue fluorescent appearance. This drink had a great reputation as a diuretic, and was used in dropsical conditions and renal disease generally. Kircher (1602 to 1680), a physician and a priest of the Jesuit order, was a versatile investigator in many sciences. He was one of the first to employ a microscope in studying disease and its causation. In his book on the plague, *"Scrutinium pestis"* (1658), he records seeing minute worms in the blood of plague patients. These are thought to have probably been rouleaux of red cells. He was, however, first to insist that a *"contagium animatum"* was the basis of infectious diseases.

The earliest British newspaper, second only to the *Weekly News* (London, 1622), was the *Mercurius Britannicus* (1643 to 1646), brought out by Marchamont Needham. This was at first a political bulletin, which in the hands of the scientific society gave rise to the scientific periodical.

In 1646 news of Torricelli's early experiments reached Pascal, who tested the idea by taking the inverted glass tube containing mercury to the top of the Puy de Dome. The mercury fell three inches, and so the idea of Nature's "abhorrence of a vacuum" fell into disuse.

Events in 1546.

Georg Agricola (1490 to 1555), the father of mineralogy, mentioned bismuth for the first time (1546) in his *"De natura fossilium"*. It was then thought to be a form of lead.

In the reign of Henry VIII the Lord Prior of the Order of Saint John of Jerusalem in England, Sir Thomas Docwra (Dockery), was in high favour. At his death in 1527 the Knights stood out against the King and secured the appointment of their own nominee, Sir William Weston. At the dissolution of the monastery (1540) their wealth and their obstinacy meant their speedy downfall. Several knights were beheaded, and the King took into his own hands this valuable prize.

On May 1, 1546, Henry VIII made a grant of the "Scyte off the pryory called Saint Johns of Jerlm. in England", and named the various buildings such as "kechyns, bier hous, bakehouses and so on", "gardens and one orchard next a ffische poole . . . the turcoplyer's garden, the woodyarde, the slaughter house and yard, the plomer's house . . ." The value of the Priory was placed at £2,304 19s. 11d., the richest but two of all in England.

Pierre Belon (Bellonius) of Le mans (1517 to 1564), after graduating in medicine and studying under Valerius Cordus, began his travels in the Near East (1546) and his lifelong study of comparative anatomy. His drawing of the skeletons of bird and man in the same posture (1555) is very striking, and is the beginning of serial homology. He also wrote a description of the Coniferæ. Belon was murdered by thieves when botanizing outside the walls of Paris.

Jerome Bock of Heiderbach, near Heidelberg (1498 to 1554), a gardener and later a Lutheran pastor, was one of the early fathers of botany. In his *"Kreutterbuch"* (1546) he wrote in German first-hand descriptions of the plants he collected.

Christopher Columbus, as we know him, Christobal Colon, as his Spanish employers called him, was born in 1446 at Genoa, and died in 1506. Of medical interest is the sequel of the visit of his sailors to Haiti. Their return heralded the outbreak of a great pandemic of syphilis in Europe, followed through European channels by a spread of global extent. Columbus, through no fault of his own, thus brought about one of the greatest disasters our race has had to face.

Wilhelm Fabry, of Hilden near Düsseldorf, Fabricius Hildanus (1560 to 1634), known as "the father of German surgery", published (1606-1646) the best collection of case records of the day, *"Observationum et curationum chirurgicarum centuriæ"*. Following his wife's suggestion, he was the first to use a magnet to get an iron splinter out of the eye. Earlier he had been the first to design a field chest for drugs for use in the army (1615), the first to work out a classification of burns (1607), and the first to amputate the thigh above the gangrenous part (1593), using a "tournique" to control bleeding. He also devised a speculum for viewing the tympanum. It is strange to find him accepting the idea of the weapon salve. The weapon got the treatment, the wound was left alone. The value of healthy negligence was explained as the magical transference of virtue from weapon to wound—treating the hair of the dog that bit you.

Gilolamo Fracastoro (Fracastorius), of Verona (1484 to 1553), was a versatile genius—physician, pathologist, physicist and epidemiologist, also poet, astronomer and geologist all rolled into one. He was one of the last

savants like Francis Bacon, who had read and knew everything then recorded. He was held in high esteem by Pope Paul. He is remembered chiefly as author of the best known medical poem, "*Syphilis sive morbus gallicus*". In it a shepherd, Syphilus by name, is suffering from a venereal infection, and from the title of the poem comes the modern name for the disease. Fracastoro is credited with the finest Latin verse since the Augustan poets. In original thought and observation it is surpassed by his publication in 1546 of "*De sympathia et antipathia rerum Liber Unus: de contagionibus sive contagiosis morbis et eorum curatione*". In this work he regarded contagion as infection transmitted (i) by contact only; (ii) by fomites such as scabies, phthisis, leprosy (fomites are such things as clothes, linen, *et cetera*, which can foster the essential seeds of the contagion); (iii) by fevers, phthisis, ophthalmias, variola and their like, which are transmitted to a distance. Between fruits—for example, one apple and another—putrefaction passes. Heat and moisture are set free and soften the parts, perhaps in combination, as the essential germs of the putrefaction; very minute particles mingle themselves and thus generate new corruptions. Infection by fomites may last for long unchanged. It is indeed wonderful how the infection of phthisis or pestilential fevers may cling to bedding, clothes, wooden articles and objects of that kind for two or three years. Particles from putrefaction do not keep their virulence long and are not regarded as identical. Not all substances are liable to become fomites, but only those that are porous, and linen cloth and wood—not iron, stone or impervious substances, for in their recesses the seeds of contagion can lurk hidden and unaltered by external causes unless excessive—for example, they cannot withstand fire. In this book is also the first authentic account of typhus. The word "fomites" which Fracastoro invented comes from the Latin for tinder, inflammable material set on fire by a spark struck by steel from a flint and used to start a fire. These materials were pictured as setting aflame an epidemic among the susceptible. This idea of minute invisible particles—*seminaria contagiosa*—is a wonderful prevision of infection by micro-organisms. Fracastoro was the first to realize the meaning of fossils (1530) and to mention the magnetic poles of the earth (1543). He prescribed diascordium for the plague—an electuary of scordium (water germander) cinnamon cassia, dittany, galbanum, gum arabic, storax, opium, sorrel, gentian, Armenian bole, sealed earth, long pepper, ginger, clarified honey, generous canary. It still exists in the British Pharmacopœia—"*diablement changé*" it is true—as *Pulvis Catechu Compositus*.

William Middleton wrote one of the early English herbals (1546).

Thomas Phayer (Phaer) (1510 to 1560) wrote "A new booke entyteled the regiment of lyfe by T. Phayer imprinted in London in flete streets at the signe of the Sunne over against the Conduyte by Edward Whitchurche, the last day of June 1546". Printed in black letter, this included the "Boke of Children", the first work in English on pædiatrics. It is a translation of a work by Jean Bourdon, and the regiment is really the "*Regimen sanitatis*" of Salerno. "Phayer" or Phaer or Phayr knew Latin and Greek well and translated the Iliad.

Valerius Cordus, who died in 1544 when aged twenty-nine years, had a truly remarkable career. He described 500 new species of plants and discovered ether (sulphuric ether). At the request of the physicians of Nuremberg he had left with them a manuscript. This they considered so complete a formulary that the Senate of Nuremberg printed it and ordered all druggists to follow its formulæ. This is therefore the first official pharmacopœia (1546), and was called "*Pharmacorum conficiendorum ratio vulgo vocant dispensatorium*". It held the field till 1666. It is only of pocket size, andits formulæ are typical of the polypharmacy of the period.

In 1546 Henry VIII founded at Cambridge the first of the Regius professorships.

In 1546 Vesalius was asked by the authorities at Basle to give a demonstration on a skeleton he had with him. On his departure Vesalius gave it to the University, which still possesses it; "The oldest biological preparation made with a scientific motive that is now in existence", Singer tells us.

Stenopeic or perforated spectacles or visors first recommended by Paul of Ægina appeared in the 1546 edition of his works printed by Oporinus at Basle.

François Rabelais (1490 to 1553), physician and priest, published (1546) his "*Tiers livre des faictz et dictz héroïques du Noble Pantagruel*". His realism, of which James Joyce's work is a present-day example, attacked the ever-persistent menace to education of cramming.

Miguel Servede (Servetus) (1509 to 1553) was born at Villanueva, Aragon, and on October 27, 1553, was burned at the stake with almost all the copies of his book. Educated for the Church, he studied law and finally medicine. He dissected at Paris with Vesalius as fellow student, and practised for twelve years in Dauphigny as Michael Villeneuve. In 1531 he was a pioneer of unitarianism. In 1546 his "*Christianisme Restitutio*" was in manuscript. In its fifth volume is his famous description of the pulmonary circulation. In 1694 Wotton proclaimed this discovery of Servetus.

Births in 1546.

Rodericus a Castro (1546 to 1637) at Hamburg published "*Medicus-politicus*", one of the earliest "modern" works on medical ethics.

Joseph du Chesne (Quercetanus) (1546 to 1619) was a Gascon by birth. He was physician-in-ordinary to Henry IV, and following Paracelsus introduced antimonial remedies. He later practised at Basle and at Geneva and studied the influence of air on wounds.

Andreas Libau (Libavius) (1546 to 1616), a physician of Coburg, is regarded as the first author of a systematic treatise on chemistry. "*Alchymia*" was published in Frankfurt in 1595. He brought out one of the early pharmacopœias (1606) and was the first to suggest blood transfusion (1615). Though possessing a well equipped chemical laboratory, in which he undertook quantitative chemical analyses, such as the analysis of mineral waters, he still held to the mystic conception of the philosopher's stone. Stannic chloride is called after him. His patron was the Emperor of Germany, Rudolph II, and Libavius himself lived in princely fashion, entertaining his guests royally.

Gasparo Tagliacozzi of Bologna (1546 to 1599) is best known by his operation of rhinoplasty in "*De curtorum chirurgia per insitionem*" (Venice, 1597). The technique was for long the secret of a family of Sicilian surgeons, the Brancas, who flourished in the fifteenth century. Probably it came from India, where cutting off of noses seems to have been a favourite punishment or pastime of the Mogul tyrants. The forearm was bound firmly to the face, and when the skin flap from the forearm united with the face it was cut off at the base and the arm was released. This practice was regarded with the greatest disfavour by the authorities of the Church and of the medical profession alike. It was apparently looked on as an offence against the Almighty's handwork. Paré would have none of it. After his death Tagliacozzi's remains were dug up and reburied in unconsecrated ground. Not till 1822 did rhinoplasty, thanks to Dieffenbach, come back into use. Tagliacozzi's statue is in the anatomy theatre at Bologna and holds a nose in its hand. Samuel Butler made the following reference in "Hudibras", Canto I:

> So learned Taliacotius from
> The brawny part of porter's bum,
> Cut supplemental noses, which
> Would last as long as parent breech,
> But when the day of Nock was out
> Off drop'd the sympathetic snout.

Deaths in 1546.

Sir Thomas Elyot (1490 to 1546) died in 1546; he wrote "The Castell of Helth" in about 1534. In 1541 he added the "Proheme" in answer to those who objected to a medical book by a layman and in the vulgar tongue. He was thoroughly read in the ancient authors such as Galen, was possibly helped by Linacre in his studies, and was a protégé of Wolsey. He became an ambassador

to Spain. However, his reputation is as a writer. He wrote "Boke named the Governour" (1531) on education and moral philosophy, "The Castell of Helth", a popular medicine, which ran into many editions, and his Latin dictionary (1538).

Other Centuries.

In 1446 the Irish Guild of Barber Surgeons was founded. As in its confraternity in London which existed as early as 1308, women were recognized as master surgeons.

In 1346 the medical school of Heidelberg was established. The University of Pisa was founded by charter from Clement VI; it became a *studium generale* (1418).

The battle of Crécy saw the first use of cannon (1346).

In 1246 the University of Siena was founded. Bologna seems to have been the first university (1158); Oxford (1201), Padua (1222), Cambridge (1223) and Toulouse (1233) are among the earliest of the "*studium generale*" type.

Aulus Aurelius Cornelius Celsus lived from 53 B.C. to A.D. 7 (dates uncertain).[1] His "De Medecina" gives a clear, commonsense statement of Greek medicine in the Rome of his day, and includes the first important history of medicine. The manuscript was found in 1443 and became one of the first medical books to appear in print. Next to the Hippocratic writings and the Egyptian papyri, it is the oldest medical writing. It was a reference book for the Royal College of Physicians even in the nineteenth century.

SOME RULES FOR THE EMPLOYMENT OF LOCAL ANALGESIA IN THE TREATMENT OF SOMATIC PAIN.

By MICHAEL KELLY,
Melbourne.

THE injection of procaine solution for somatic pain has proved a valuable measure in the hands of some practitioners, and of little use in the hands of others. Clinicians of high repute may be heard to say, as though it were a matter for pride, that they have had no success with the method. Thus a recent writer[1] has written:

> It has always seemed to me that cures by a series of such injections have resulted in spite of the treatment rather than because of it. I have previously stated that local anæsthetic agents should not be injected into the sacrospinalis of patients suffering from low back pain, because this predisposes the patient to herniation of a disk. . . . I have yet to convince myself that injection of the so-called nodules around the shoulder girdle is of any value. It is also rather difficult to see how injection of these "nodules" can be of more than temporary value if, as seems likely, they are due to irritation of motor fibres in the nerve roots.

In contrast to such a confession of failure can be placed the witness of dozens of observers during the past forty years. So far as can be discovered, the earliest use of local analgesia was made by Sir William Gowers,[2] who wrote in 1904:

> A local measure that often does good is the deep hypodermic injection of cocaine, repeated daily for 2 or 3 weeks. It unquestionably promotes the subsidence of the sensitiveness, provided the ease obtained is not abused by increased exertion. Probably eucaine would be equally effective.

Other well-known medical figures who found the method of value in the intervening years are the late Sir Walter Langdon-Brown,[3] H. S. Souttar[4] and Sir Trent de Crespigny.[5] Apparently successes were only occasional, and the treatment was forgotten and rediscovered several times[6][7][8][9][10][11][12] before it was put on a sound footing by J. H. Kellgren[13] in 1938. Since Kellgren's principles have been adopted, an increasing number of practitioners have borne witness to their value.[14]-[69] If, at the risk of repetition, I venture to reopen what may seem a hackneyed topic, it is because I wish to reemphasize the value of this simple therapeutic weapon, which should be employed in the majority of cases of somatic pain, with prospects of lasting relief for more than a third of the patients treated. Local analgesia is more than a therapeutic weapon; it is an important instrument of research if applied correctly; but it is unreliable if certain principles are not strictly observed. It is clear that the reason for its neglect during the years from 1904 to 1938 was its unreliability—because of the lack knowledge of these principles. And those who fail to see any use in the method today do so because they cannot envisage the necessity to observe the rules to which its use should be subject.

Kellgren[13][14][15][16] applied to the treatment of somatic pain the principles he had discovered during the investigation of artificial deep lesions. The most important of these are the following: (i) Pain from localized lesions radiates in patterns which tend to be constant for each region of the body. (ii) The area to which the pain radiates may become tender. If the primary lesion is anæsthetized, this secondary tenderness vanishes. (iii) The primary lesions themselves show a predilection for certain areas.

In previous papers[70]-[79] I have described the results of treatment of pain in various regions and the method which I follow. It was clear from the start that no benefit resulted from haphazard injections into diffusely

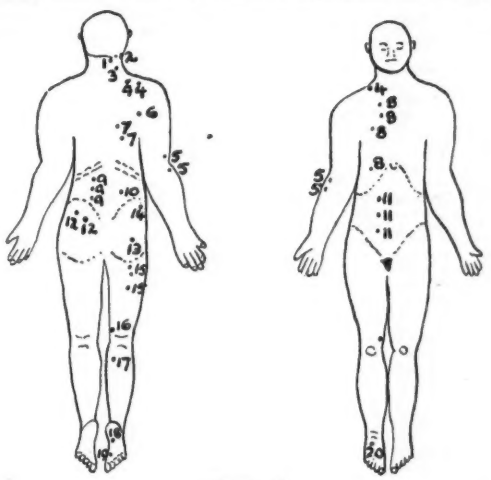

FIGURE I.
Most frequent sites of muscular lesions, numbered as in Table I.

tender areas; a localized spot of more acute tenderness should be sought. I soon became aware that these lesions tended to favour certain sites in the body and limbs, and that their secondary effects tended to spread in certain oft-repeated patterns. An apparently identical process has been observed so repeatedly that the phenomena appear to be guided by a natural law. Lesions may be found, of course, in sites other than the common ones, but in more than 60% of cases the lesion occurs in the situations portrayed in Figure I, with effects indicated in Table I.

The "lesion" is not necessarily a nodule; Pugh and Christie[80] have shown that there is no constant relationship between fibrositic lesions and the indurations and nodules which are commonly found in normal muscular and subcutaneous tissue. Tenderness is more significant than induration, and the commonest error is to confuse the tenderness of the lesion with the secondary tenderness which is one of its effects.

Copeman and Burt[34] and Ray[81] have pointed out that good results have been obtained by injecting saline or glucose solutions. However, I have used only analgesic solutions, and I see no reason for changing. The advantages gained by local analgesia are great, for it is a means both of diagnosis and of treatment. Though large quantities of fluid were used at first, with experience it has been

[1] 1946 is the twentieth centenary of the year 53 B.C.

possible to cut these down to minimal quantities; provided that the lesion can be accurately located, striking relief of widely radiating pain may be achieved by injecting such small amounts as one millilitre of 0·5% procaine solution.

The observer should be prepared to devote some time to his examination, and he will find that only after some experience can he obtain a reliable impression of the sensitivity to deep palpation of normal and abnormal muscles.

I am not the only worker in this field who has encountered scepticism regarding the results obtained by this form of treatment. Janet Travell,[69] of Cornell University, New York, whose results with painful shoulders agree closely with mine, complains of a similar disbelieving attitude in those who have not given the method a fair trial.

It must be admitted that the method has not been well served by its over-enthusiastic protagonists, who too often have claimed dramatic successes in the vast majority of cases. It is but natural that a critical reader will discount the whole of such a report because of the too-obvious enthusiasm of the writer and the sweeping nature of his claims.

TABLE I.
Most Frequent Sites of Muscular Lesions.

No.	Site of Lesion.	Location and Type of Pain.	Approximate Prospects of Cure.
1	Trapezius: near mid-line, just below attachment.	Occipital headache; may ascend to vertex.	1 in 5
2	Angle between trapezius and sterno-mastoid. Common.	Side of head; may spread to face or eye.	1 in 3
3	Edge of trapezius below third cervical vertebra. Less common.	"Stiff neck"; may radiate to occiput or to shoulder.	1 in 4
4	Above spine of scapula; trapezius or supraspinatus. Common.	Scapula to mid-humerus. Stiffness of shoulder, nocturnal aching.	2 in 5
5	Muscles attached to lateral condyle and supracondylar ridge. Common.	Lower humeral region to dorsum of hand; "tennis elbow"; neuralgia.	2 in 5
6	*Infraspinatus* or *teres major*. Less common.	Back of shoulder and upper part of arm.	1 in 2
7	Deep in posterior intercostal space.	"Pleurodynia."	2 in 5
8	Anterior intercostal space.	"Pleurodynia."	2 in 5
9	Edge of lumbar sacrospinalis. Common.	Lumbago; may radiate to front; patient can flex hip.	1 in 4
10	Deep to sacrospinalis: *quadratus lumborum*. Less common.	Abdomen.	1 in 2
11	Edge of *rectus abdominis*.	Abdomen.	1 in 3
12	*Gluteus maximus* at musculo-tendinous junction. Common.	Backache; worse on flexing hip.	1 in 4
13	*Gluteus maximus* (or muscles beneath) near *tuber ischii*.	"Sciatic" pain.	1 in 4
14	*Gluteus medius*.	"Sciatic" pain.	Nil
15	Hamstring muscles anywhere from upper attachment to middle.	"Sciatic" pain.	1 in 4
16	Region of adductor tubercle. Common.	Pain in knee, stiffness.	1 in 3
17	Medial head of gastrocnemius or soleus. Less common.	Anywhere from knee to lower part of calf.	1 in 10
18	Deep muscles of sole. Common.	Painful heel.	Nil
19	*Abductor pollicis*. Less common.	Cramps in foot.	1 in 3
20	*Extensor brevis digitorum*. Less common.	Cramps in foot.	1 in 3

Technique of Injection.

Before an attempt is made to inject a lesion, the patient should be recumbent. Disregard of this rule will lead now and then to embarrassing consequences in the form of fainting fits. With the patient recumbent and in such a position that his affected muscles are relaxed (thus, for lumbar fibrositis the patient lies prone with the lumbar portion of his spine flexed over a pillow), the lesion is identified by palpation, and it will usually be found in one of the common sites. A syringe of two millilitre capacity is used, on which is mounted a fine hypodermic needle 2·5 inches in length (Burroughs Wellcome and Company's "Agla" Number 206 is ideal for this). After a weal has been raised, the needle is passed deeply, minute quantities of 0·5% procaine solution being injected as it approaches the deep fascia. When the lesion is encountered, the patient usually winces or gives other evidence of discomfort.

Sometimes such a minute quantity as one millilitre is enough to inactivate the lesion. Some years ago I was using a ten millilitre syringe with a long serum needle; but the smaller the syringe used, the smaller will be the quantity of fluid necessary. Usually it is necessary to refill the two millilitre syringe once or twice. The majority of lesions can be reached with a fine needle 2·5 inches long; this means the avoidance of a good deal of distress for the patient. When the patient is obese or the lesion too deep, a fine serum needle will have to be used. If tenderness remains after infiltration, the lesion is further explored and infiltrated. When all tenderness has been abolished, the patient is made to perform the movements which were painful, and if the infiltration has been successful, relief is striking and complete. If pain and stiffness remain, further search may reveal either a second lesion or some residual tenderness of the original lesion, or it may become obvious that one has been treating secondary tenderness instead of the primary lesion. Often it is necessary to be guided only by trial and error; but it is essential to persevere until the tenderness of the lesion has been abolished and the pain on movement has disappeared. The result can be achieved in four cases out of five, and the relief is lasting in nearly half of these.

When cure is complete, it is striking, and is related without a doubt to the therapeutic procedure. It cannot be classified with that "70% of improvement" which, according to Tegner,[82] follows the introduction of any new treatment, anywhere. Nor can it be attributed to "psychogenic" causes; it is essential that a correct technique be followed, for haphazard injections invariably are unsuccessful.

The Primary Rules.

The value of local analgesia in fibrositis appears to vary with a number of factors, but two primary rules must be followed strictly. (i) It is safe to assert at first that the method should not be used unless a localized lesion can be found; it is useless to infiltrate in a haphazard manner larger areas of diffuse tenderness. (ii) I have found the method of little therapeutic value when the lesion occurs in fibrous tissue; on rare occasions only has success been obtained. I have not been able to confirm the claims of Steinbrocker[32][33][34] and others, who have treated painful shoulders by infiltrating the periarticular fibrous tissues.

If the tenderness of the fibrous structures does not disappear upon the treatment of a lesion in muscle, it is unlikely that success will be achieved by injection of other regions. As a general rule, to inject a local anæsthetic solution into fibrous tissues is to court a severe reaction and perhaps a subsequent worsening of the patient's symptoms. Similarly, I have not been able to satisfy myself that acute sprains of joints respond well to this treatment.

The Results of Treatment.

If the causative lesion is accurately identified and carefully treated, injection will be followed immediately by the disappearance of the pain and its concomitant signs (deep tenderness, muscular stiffness *et cetera*). On the abatement of the analgesia, there may be a period of worsening of the symptoms for a few hours; but if the results are going to be favourable, this should quickly subside. More commonly, however, if the result is to be successful, the pain does not return in its original form, and the disappearance of the analgesia is accompanied only by stiffness and a "bruised" feeling, both of which pass off within forty-eight hours. The patient is advised to perform normal movements; but it has not been thought necessary to prescribe deep massage or movements of extreme range.

If the injection is unsuccessful, the symptoms will return in their previous form, or will even be slightly worse. The diffuse tenderness usually is more intense than before; but it settles down within a few days to its previous condition. Such a return to the former state is an unfavourable prognostic sign, and it is uncommon if the pain returns in an unmodified form for persistence with injections to be followed by cure. However, it is my custom to persist until three injections have been given at weekly intervals, and the treatment then is discontinued if no improvement has occurred. Similar conclusions were reached independently by Travell, Rinzler and Herman[53] in their observations on painful shoulders. In some cases the pain returns, but with changes in quality and in distribution. Here it will often be found, on reexamination within a few days, that the original lesion has disappeared and a new one has been formed in adjacent tissues. This is a not uncommon occurrence; it is a favourable prognostic sign, and treatment of the new lesion should be proceeded with. In other cases, complete relief lasting for several days may be followed by a recurrence of the lesion in its previous situation. Here a second injection often will result in a lasting cure.

Multiple Lesions.

When pain radiates over a wide area, two or more lesions may be responsible. Here again the tendency is to favour the common sites, and the lesions can be treated one by one. The formation of a lesion anywhere may be followed by the metastatic appearance of fresh lesions in distant parts. Usually they respond well to treatment.

The Prognostic Factors.

In less than half the total number of cases has the lesion proved curable, and I have been unable to foretell with any degree of confidence those in which it will be successful and in which it will not. However, certain factors render a cure more or less probable. The known prognostic factors (none of which is absolute) are as follows.

Site of Lesion.

Good results are less common in the lower part of the leg and the foot than in other sites, and they are less frequent in "sciatica" than in other types of pain. The most favourable results are obtained in the shoulder, the forearm and the chest. Chronic lesions of the back as a rule react unfavourably.

Chronicity.

A lesion which has been causing symptoms for more than three months is more difficult to cure than one of shorter duration. As a general rule, the longer the duration, the worse the prognosis.

Existence of Organic Change.

Organic disease, acting as a precipitating or a predisposing factor, renders a cure less likely, though it does not rule it out. Thus pain related to a scar or to localized spondylitis is likely to prove resistant. The presence of crepitus in the subacromial bursa, or of calcification in the supraspinatus tendon, is a relatively unfavourable prognostic factor in shoulder pain. The presence of even gross joint disease, however, should not deter the clinician from injecting any well-defined muscular lesions in the vicinity.

Concomitant Symptoms.

Pain unaccompanied by other symptoms is more amenable to cure than when functional visceral disorders coexist. Thus an abdominal lesion, as a rule, is more resistant if accompanied by gastric or other ailmentary symptoms. Myalgic headaches accompanied by giddiness are less manageable than uncomplicated headaches.

Prognosis for Soldiers.

The prognosis among soldiers is much worse than among civilians. A combination of several factors is responsible. (*a*) The soldier is likely to complain of symptoms which to the civilian would be trivial, but which render a soldier unfit for strenuous training. (*b*) Muscles which owing to strenuous training are subject to fatigue will be more likely to develop intractable lesions. (*c*) The effect of the mental factor is imponderable. There is the element of exaggeration and the element of discontent.

Comment.

Even in the presence of all these discouraging factors, the use of local analgesia should not be omitted, for the most surprising results may be obtained in a case which appears to be unfavourable.

The Next Step.

There is an overwhelming amount of evidence to indicate that local analgesia is of value in the treatment of somatic pain. Unlike many others, I cannot claim cure in every case and in spite of attempts to improve my technique I find that my proportion of cures remains the same. There seems little doubt, however, that if the precisely correct technique was to be followed in every case, a greater proportion of cures would result. This should prove a fruitful basis for further investigation. We should not deny the fact that many patients are cured; we should accept this established fact and ask ourselves why we fail so frequently.

At present we are groping in the dark; we do not know the mechanism which is at work. When the phenomenon is satisfactorily explained, doubtless we shall know why we fail so often, and our errors will be satisfactorily corrected. There is little doubt that basic pain mechanisms are involved, and that a correct elucidation of the processes at work will mean a great step towards the solution of the larger problems of pain.

Summary.

1. The use of local analgesia for somatic pain is a valuable therapeutic measure.

2. Localized lesions, which have a predilection for certain sites, may be responsible for widely radiating pain, tenderness and stiffness.

3. The infiltration of the primary lesion is followed by the disappearance of these wider phenomena, and in more than a third of the cases the relief is permanent.

4. This small measure of success with the method is dependent upon the strict observance of certain cardinal rules.

5. Since the mechanisms at work are unknown, no reasons can be given for the failure of the method in more than 60% of cases.

6. It is suggested that this may prove a fruitful field for further research.

References.

(1) *J. H. Young:* "Cervical and Thoracic Intervertebral Disk Disease", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1946, page 833.

(2) *W. R. Gowers:* "Lumbago, its Lessons and Analogues", *British Medical Journal, Volume I, 1904, page 117.*

(3) W. Langdon-Brown: "Fibrositis and Muscular Rheumatism", *The Lancet*, Volume II, 1913, page 295.

(4) *H. S. Souttar:* "Acute Lumbago Treated by the Injection of Quinine and Urea", *British Medical Journal, Volume II,* 1923, page 915.

(5) C. T. C. De Crespigny: Lectures to Medical Students, Adelaide, 1925.
(6) W. Harris: "Neuritis and Neuralgia", 1926, page 408.
(7) R. Leriche and R. Fontaine: "*De la valeur thérapeutique des infiltrations péri-articulaires à la novocaine dans les entorses et les arthrites traumatiques*", *La presse médicale*, Volume XL, 1932, page 280.
(8) S. Kiaer: "On the Diagnostic and Therapeutic Employment of Novocain Injections in Traumatic Reflexive Contractures", *Acta orthopædica Scandinavica*, Volume II, 1932, page 273.
(9) J. B. Carnett: "Pain and Tenderness of the Abdominal Wall", *The Journal of the American Medical Association*, Volume CII, 1934, page 345.
(10) E. Ries: "Epi-Sacro-Iliac Lipoma", *American Journal of Obstetrics and Gynecology*, Volume XXXIV, 1937, page 490.
(11) A. Steindler and J. V. Luck: "Differential Diagnosis of Pain Low in the Back: Allocation of the Source of Pain by the Procaine Hydrochloride Method", *The Journal of the American Medical Association*, Volume CX, 1938, page 106.
(12) J. M. Tarsy: "The Relief of Pain in Arthritis by Regional and Local Analgesic Injections", *Medical Record*, Volume CXLVIII, 1938, page 269.
(13) J. H. Kellgren: "A Preliminary Account of Referred Pain Arising from Muscle", *British Medical Journal*, Volume I, 1938, page 325.
(14) J. H. Kellgren: "Some Painful Joint Conditions and Their Relation to Osteo-Arthritis", *Clinical Science*, Volume IV, 1939, page 193.
(15) J. H. Kellgren: "Sciatica", *The Lancet*, Volume I, 1941, page 561.
(16) J. H. Kellgren: "Conditions of Back Simulating Visceral Disease", *Proceedings of the Royal Society of Medicine*, Volume XXXV, 1942, page 199.
(17) G. E. Haggart: "Sciatic Pain of Unknown Origin: An Effective Method of Treatment", *The Journal of Bone and Joint Surgery*, Volume XX, 1938, page 851.
(18) K. O. Haldeman and R. Soto-Hall: "The Diagnosis and Treatment of Sacro-Iliac Conditions by the Injection of Procaine (Novocain)", *The Journal of Bone and Joint Surgery*, Volume XX, 1938, page 675.
(19) A. R. Neligan: "Diagnosis and Treatment of Fibrositis and Neuritis", *The Practitioner*, Volume CXLIII, 1939, page 263.
(20) E. V. Allen and E. B. Tuohy: "Relief of Somatic Pain by Local Anæsthetization", *Proceedings of the Staff Meetings of the Mayo Clinic*, Volume XV, 1940, page 58.
(21) C. W. Buckley: "Fibrositis: Some Old and New Points of View", *Annals of the Rheumatic Diseases*, Volume II, 1940, page 83.
(22) M. Button: "Muscular Rheumatism: Local Injection as a Means of Rapid Restoration of Function", *British Medical Journal*, Volume II, 1940, page 183.
(23) W. S. C. Copeman: "Notes on the Treatment of Rheumatic Diseases in the B.E.F.", *The Journal of the Royal Army Medical Corps*, Volume LXXIV, 1940, page 277.
(24) W. S. C. Copeman and H. A. Burt: "The Treatment of Muscular Rheumatism by Injection", *Post-Graduate Medical Journal*, Volume XVI, 1940, page 293.
(25) H. Warren Crowe: "Injection Treatment of Muscular Rheumatism", *British Medical Journal*, Volume II, 1940, page 398.
(26) J. F. H. Dally: "Procaine Injection for Muscular Pain", *The Lancet*, Volume II, 1940, page 405.
(27) J. B. Harman: "Fibrositis and Pain", *Annals of the Rheumatic Diseases*, Volume II, 1940, page 101.
(28) J. B. Harman and R. H. Young: "Muscle Lesions Simulating Visceral Disease", *The Lancet*, Volume I, 1940, page 1111.
(29) E. G. L. Goffe: "Injection Treatment of Muscular Rheumatism", *British Medical Journal*, Volume II, 1940, page 300.
(30) S. Schnur: "Deep Injection of Novocain for Relief of Pleural Pain", *Annals of Internal Medicine*, Volume XIII, 1939, page 845.
(31) A. Steindler: "The Interpretation of Sciatic Radiation and the Syndrome of Low Back Pain", *The Journal of Bone and Joint Surgery*, Volume XXII, 1940, page 28.
(32) O. Steinbrocker: "Local and Regional Analgesic Injections in the Treatment of Intractable, Nonsurgical Shoulder Conditions", *The Journal of the American Medical Association*, Volume CXV, 1940, page 2025.
(33) O. Steinbrocker: "Analgesic Block in the Diagnosis and Treatment of Low Back Pain", *Current Researches in Anesthesia and Analgesia*, Volume XX, 1941, page 221.
(34) O. Steinbrocker: "Therapeutic Injections in Painful Musculo-Skeletal Disorders, with Special Reference to the Saline-Procaine Test", *The Journal of the American Medical Association*, Volume CXXV, 1944, page 397.
(35) E. A. Brav and H. Sigmond: "Local and Regional Injection Treatment of Low Back Pain and Sciatica", *Annals of Internal Medicine*, Volume XV, 1941, page 840.
(36) J. H. Cyriax: "Massage, Manipulation and Local Anæsthesia", 1941.
(37) D. W. Smith and W. Bates: "The Surgical Significance of Abdominal Wall Pain", *Surgery*, Volume IX, 1941, page 741.
(38) F. W. Hark: "Pain in Muscles, Bones and Joints", *Medical Clinics of North America*, Volume XXV, 1941, page 63.
(39) R. Turner: "Muscular Rheumatism", *British Medical Journal*, Volume II, 1940, page 431.
(40) R. Turner: "The Treatment of Fibrositis by Local Injection", *The Journal of the Royal Army Medical Corps*, Volume LXXVIII, 1942, page 77; abstracted in *International Abstract of Surgery*, Supplementary to *Surgery, Gynecology and Obstetrics*, Volume LXXV, 1942, page 272.
(41) N. H. Vakeel: "Local Injections in Muscular Rheumatism", *British Medical Journal*, Volume I, 1941, page 64.
(42) M. G. Good: "Rheumatic Myalgias", *The Practitioner*, Volume CXLVI, 1941, page 167.
(43) M. G. Good: "Traumatic Myalgias", *The Practitioner*, Volume CXLVIII, 1942, page 236.
(44) M. G. Good: "Diagnosis and Treatment of Sciatic Pain", *The Lancet*, Volume II, 1942, page 597.
(45) R. J. Behan: "Pain due to Involvement of the Sympathetic Nervous System", *Transactions of the American Therapeutic Society*, Volume XLII, 1942, page 92.
(46) C. Lambrinudi: Discussion on Painful Feet, *Proceedings of the Royal Society of Medicine* Volume XXXVI, 1942, page 47.
(47) J. L. Ingham: "Abdominal Neuralgia in Relation to Superficial Abdominal Nerves", *The American Journal of Surgery*, Volume LV, 1942, page 492.
(48) J. H. Hutchison: "Non-Articular Rheumatism in the Army: Symptomatology, Ætiology, Treatment", *Glasgow Medical Journal*, Volume CXXXVII, 1942, page 33.
(49) E. J. Moynahan and E. S. Nicholson: "Value of Procaine Infiltration in the Diagnosis and Treatment of Fibrositis", *British Medical Journal*, Volume I, 1942, page 65.
(50) L. Vinsant: "Low Back Pain and Injection Treatment", *Journal of the Tennessee Medical Association*, Volume XXXV, 1942, page 53.
(51) O. Savage: "The Management of Rheumatic Disease in the Forces", *British Medical Journal*, Volume II, 1942, page 336.
(52) J. P. Martin: "Discussion on Sciatic Pain", *Proceedings of the Royal Society of Medicine*, Volume XXXV, 1942, page 505.
(53) J. Travell, S. Rinzler and M. Herman: "Pain and Disability of the Shoulder and Arm: Treatment by Intramuscular Infiltration with Procaine Hydrochloride", *The Journal of the American Medical Association*, Volume CXX, 1942, page 417.
(54) J. E. Farber: "Injection of Procaine for Pleural Pain", *American Review of Tuberculosis*, Volume XLVII, 1943, page 469.
(55) H. J. Price: "Relief of Acute Pleuritic Pain by Intercostal Nerve Block", *The Journal of the American Medical Association*, Volume CXXIII, 1943, page 628.
(56) W. K. Livingston: "Pain Mechanisms", 1943.
(57) D. Young: "The Effects of Novocain Injections on Simulated Visceral Pain", *Annals of Internal Medicine*, Volume XIX, 1943, page 749.
(58) F. A. Elliott: "Aspects of 'Fibrositis'", *Annals of the Rheumatic Diseases*, Volume IV, 1944, page 22.
(59) R. L. Gorrell: "The Treatment of Skeletal Pain with Procaine Injections: An Analysis of 295 Cases Treated in General Practice", *The American Journal of Surgery*, Volume LXIII, 1944, page 102.
(60) A. D. Levay: "Sciatica: A Study of 40 Cases", *The Lancet*, Volume I, 1944, page 116.
(61) O. Brüel: "Relief of Pain as a Therapeutic Measure. Impletol (Procaine Hydrochloride Preparation) in Common Painful Conditions", *Nordsk. Medizin.*, Volume XXI, 1944, page 190. (Reference only: Index Medicus.)
(62) E. Vaubel: "Procaine Hydrochloride Infiltration in Therapy of Painful States in Region of Sciatic Nerve", *Deutsche medizinische Wochenschrift*, Volume LXX, 1944, page 28. (Reference only: Index Medicus.)
(63) O. W. Jones and H. A. Brown: "The Treatment of Post-Traumatic Head Pain", *The Journal of Nervous and Mental Disease*, Volume XCIX, 1944, page 668.
(64) K. F. D. Sweetman: "Periarticular Fibrositis of the Knee and the Value of Local Analgesia", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1944, page 474.
(65) Z. Winter: "Referred Pain in Fibrositis", *Medical Record*, Volume CLVII, 1944, page 34.
(66) H. E. Hipps and H. Neely: "The Injection Treatment of Flat Feet", *The United States Naval Medical Bulletin*, Volume XLIV, 1945, page 262.
(67) B. Judovich: "Somatic Pain: Diagnostic and Therapeutic Aspects of Local Infiltration", *The American Journal of the Medical Sciences*, Volume CCIX, 1945, page 240.
(68) W. S. C. Copeman and L. G. C. Pugh: "Effects of Artificial Dehydration in Rheumatism", *The Lancet*, Volume II, 1945, page 553.
(69) J. Travell: Personal communication, 1945.
(70) M. Kelly: The Treatment of Fibrositis and Allied Disorders by Local Anæsthesia", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1941, page 294.
(71) M. Kelly: "Lumbago and Abdominal Pain", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1942, page 311.
(72) M. Kelly: "New Light on the Painful Shoulder", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1942, page 488.
(73) M. Kelly: "Headaches, Traumatic and Rheumatic: The Cervical Somatic Lesion", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1942, page 479.
(74) M. Kelly: "Pain in the Chest: Observations on the Use of Local Anæsthesia in its Investigation and Treatment", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1944, page 4.
(75) M. Kelly: "Periarticular Fibrositis of the Knee and the Value of Local Analgesia", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1944, page 286.
(76) M. Kelly: "Pain in the Forearm and Hand due to Muscular Lesions", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1944, page 185.
(77) M. Kelly: "The Nature of Fibrositis. I. The Myalgic Lesion and its Secondary Effects: A Reflex Theory", *Annals of the Rheumatic Diseases*, Volume V, 1945, page 1.
(78) M. Kelly: "The Nature of Fibrositis. II. A Study of the Causation of the Myalgic Lesion", *Annals of the Rheumatic Diseases*, Volume V, 1946, page 69.
(79) M. Kelly: "The Nature of Fibrositis. III. Multiple Lesions and the Neural Hypothesis", *Annals of the Rheumatic Diseases*, in the press.

(30) L. G. C. E. Pugh and T. A. Christie: "A Study of Rheumatism in a Group of Soldiers with Reference to the Incidence of Trigger Points and Fibrositic Nodules", *Annals of the Rheumatic Diseases*, Volume V, 1945, page 8.
(31) M. B. Ray: "Isotonic Glucose Solutions in the Treatment of Fibrositis", *British Medical Journal*, Volume II, 1944, page 850.
(32) W. S. Tegner: "Treatment of the Rheumatic Diseases in the United States and on the Continent of Europe", *Annals of the Rheumatic Diseases*, Volume I, 1939, page 249.

HETEROSPECIFIC PREGNANCY: III. THE Rh FACTOR AND REPEATED MISCARRIAGES.

By P. M. de Burgh, Ruth A. Sanger and R. J. Walsh,[1]
Sydney.

The iso-immunization of an Rh-negative mother by an Rh-positive fœtus has certainly resulted in some miscarriages. Such events, however, typically follow earlier pregnancies which have continued for the normal period, and in which at least one of the infants has shown frank manifestations of hæmolytic disease of the newborn. The ætiology of those miscarriages which are not preceded by full-term pregnancies is obscure, and investigations of the Rh groups have been frequently performed on the families concerned. The writers have recently investigated 97 such cases. A statistical analysis of the results is presented in this paper.

Material.

The patients were referred by hospitals and medical practitioners because of the occurrence of repeated miscarriages of unexplained ætiology. The pregnancies have been divided into the following three groups: (i) the only pregnancies terminated spontaneously at less than twenty-six weeks of gestation; (ii) at least one pregnancy continued for longer than twenty-six weeks, but none reached full term; others terminated spontaneously at less than 26 weeks; (iii) one pregnancy proceeded to full term; at least two others terminated before twenty-six weeks.

Blood was collected and the tests were performed by the methods described in an earlier paper.(1)

Results.

The results of the Rh tests on the mothers' red cells are shown in Table I. Serum from six of the Rh-negative women was completely tested for the presence of iso-immunization with negative results. The percentage of Rh-negative mothers in the first group (25·36% ± 3·58%) was compared with the percentage of Rh-negative persons found in the Australian population (14·87% ± 1·28%) by Simmons, Jakobowicz and Kelsall.(2) It was found that $\frac{\text{difference}}{\text{possible error difference}}$ equalled 2·76, a figure which is not considered statistically significant. A similar comparison of the percentage of Rh-negative mothers in the total investigated, 23·2% ± 2·92%, with the same Australian figures showed that $\frac{\text{difference}}{\text{possible error difference}}$ equalled 2·6.

Discussion.

The percentage of Rh-negative persons among the 97 patients examined (23·2 ± 2·92%) is in striking contrast to the percentage of Rh-negative individuals who gave birth to infants affected with hæmolytic disease of the newborn (92%).(3) It is clear, therefore, that an Rh incompatibility is not one of the major causes of repeated miscarriages. Although the number of cases investigated in this series is not large, it is hoped that the results, when added to those of other series, may assist in determining whether such an incompatibility plays a minor ætiological role.

Two patients not included in the series have been encountered in whom iso-immunization was detected. One of these would have been included in the second group(4) and the other in the third group.(3) The Rh factor has been demonstrated in an eleven-weeks fœtus,(5) and the detection of iso-immunization in the serum of patients who have had repeated miscarriages is therefore not surprising. However, little evidence is available at the present time to support or contradict the hypothesis that an Rh incompatibility causes miscarriages. Rh incompatibility could certainly not be considered the ætiological factor in a particular instance unless evidence was obtained of maternal iso-immunization.

[1] From the New South Wales Red Cross Blood Transfusion Service.

Table I.
The Rh Groups of Patients Investigated.

Group.	Number Tested.	Rh-Positive.	Rh-Negative.	Percentage Rh-Negative.
I	67	50	17	25·4
II	12	9	3	25·0
III	16	14	2	12·5
Total ..	95	73	22	23·2

Summary.

Rh investigations were performed on the blood of 97 women who had had repeated miscarriages. An analysis of the results shows that an Rh incompatibility is not a major ætiological factor, but that it cannot be excluded in individual cases.

References.

(1) P. M. de Burgh, R. A. Sanger and R. J. Walsh: "Some Aspects of the Immunology of the Rh Factor", *The Australian Journal of Experimental Biology and Medical Science*, to be published.
(2) R. T. Simmons, R. Jakobowicz and G. A. Kelsall: "The Rh Factor: A Survey of the Subtypes of White Australians", The Medical Journal of Australia, December 29, 1945, page 493.
(3) R. J. Walsh: "Ætiology of Hæmolytic Disease of the Newborn", The Medical Journal of Australia, July 14, 1945, page 33.
(4) P. M. de Burgh, R. A. Sanger and R. J. Walsh: "Heterospecific Pregnancy: The Clinical Importance of the Rh Factor", The Medical Journal of Australia, Volume I, 1947, page 174.
(5) F. Stratton: "Demonstration of the Rh-Factors in the Blood of a 48 mm. Embryo", *Nature*, Volume CLII, October 16, 1943, page 449.

THE THIAMIN AND RIBOFLAVIN CONTENT OF SOME COMMERCIAL VEGETABLE AND YEAST EXTRACTS.

By Catherine E. Francis,
Australian Institute of Anatomy, Canberra.

There is a widespread belief that vegetable and yeast extracts are valuable sources of the vitamins of the *B* group. The purpose of the present paper is to report the amounts of two of the most important vitamins of the *B* group (thiamin and riboflavin) in some of these products. The preparations analysed included both well-established and recently introduced brands, as well as some experimental products which were not sold on the open market.

Analytical Methods.

The thiamin content was determined by the thiochrome method. The procedure at present used in this laboratory will be described in another publication.(1) In this procedure the commonly employed method of correcting for non-specific fluorescence—namely, the use of the "unoxidized blank"—is used. The validity of this procedure was tested on an aliquot, which had been treated with sodium sulphite to destroy all the thiamin.(2)

For the riboflavin assay a weighed sample was added to acetate buffer (pH 4·5) and the mixture was brought to the boil. After cooling, 0·2% takadiastase and 0·2% papain were added and the mixture was incubated at 37° C. for sixteen hours. After dilution to an appropriate volume, the riboflavin content was determined by the fluorometric method described by Slater and Morell.[3]

Results.

The results are listed in Table I, which includes the amount of thiamin and riboflavin provided by a normal serving. A normal serving has been taken to be 3·6 grammes, which is the amount used as a spread on two slices of buttered bread. Also included in the table are the percentages of the National Research Council's recommended daily allowance of thiamin (1·5 milligrammes) and of riboflavin (2·0 milligrammes) for a moderately active adult man, provided by a normal serving.[4]

Discussion.

The results reveal that the thiamin and riboflavin contents of the different brands vary considerably. This is not surprising when one considers the types of foods from which they are made. Many of the products analysed are made from yeast, some from unspecified vegetables, two from cereals and one from soya bean. Product V is made from wheaten gluten, ground peas, wheaten cornflour and curry flavour, and synthetic thiamin is added. Product III is a cereal product, and the high thiamin and low riboflavin content suggests that it also contains synthetic thiamin. Probably there is a considerable destruction of the heat-labile thiamin during the preparation of these products. Product IV is made by heating compressed yeast in an open kettle at just below 212° F. for three hours. The original yeast contained 5·6 and the final product 4·6 microgrammes of thiamin per gramme. In view of the loss of water during evaporation, there must have been a considerable destruction of thiamin during manufacture.

The figures for sample *F* of product II and for the stored sample of product V show that the thiamin in some products is rather unstable. This is in agreement with the work of Harris and Wang,[5] who reported a considerable deterioration of the thiamin in commercial yeast extracts (36% in three months).

The main conclusion to be drawn from the results in Table I is that, while many of the products contain a high concentration of thiamin and riboflavin, the amount in a normal serving is insufficient to provide more than a small proportion of the human requirement of these vitamins. For example, products I and II provide in a serving 7% and 3% respectively of the National Research Council's recommended daily allowance of thiamin and only 6% and 4% respectively of the allowance of riboflavin. Despite this, some manufacturers of these products use such expressions as "valuable source of vitamin B_1", "vitaminised", "saturated with vitamins", "full of vitamins" on the labels or in advertisements.

Recently the Ministry of Food in the United Kingdom issued an order[6] dealing with claims regarding vitamin and mineral contents on food labels and advertisements. This order is as follows:

> 1. Unless the amount of food that would ordinarily be consumed in one day contains at least one-sixth of the daily requirement of the vitamin or mineral: (*a*) no claim based on its presence should be made, and (*b*) no reference to its presence is justified in any advertisement for the general public, or on any label.
>
> 2. Unless the amount of food that would ordinarily be consumed in one day contains at least one-half of the daily requirement of the vitamin or mineral, no claims are justified which imply that the food is a "rich" or "excellent" source of the vitamin or mineral.
>
> 3. Unless the amount of the food that would ordinarily be consumed in one day contains at least the full daily requirement of the vitamin or mineral, no reference is justified to the value of the food for the prevention or cure of disease due to the lack of the vitamin or mineral present in the food.

In this order the daily requirement of thiamin is given as 0·9 milligramme and that of riboflavin as 1·8 milligrammes. If we consider that the amount of vegetable extract which would ordinarily be consumed in one day is two servings—that is, equal to the amount used as a spread on four slices of buttered bread (a generous allowance), then the manufacturers of products I, III, V and VII would be permitted to make a general claim that thiamin was present in their product; but none of these products could be claimed to be "rich" or "excellent" sources of this vitamin, nor would any reference to the value of the food for the prevention or cure of disease

TABLE I.
Thiamin and Riboflavin Content of Vegetable Extracts.

Product.	Thiamin Content.			Riboflavin Content.		
	Microgrammes per Gramme.	Microgrammes per Serving.	Percentage of National Research Council Recommended Daily Allowance in a Serving.	Microgrammes per Gramme.	Microgrammes per Serving.	Percentage of National Research Council Recommended Daily Allowance in a Serving.
I	29	106	7	35	126	6
II—						
Sample A	13	46	3	19	68	3
Sample B	18	64	4	30	108	5
Sample C	17	63	4	—[1]	—	—
Sample D	12	45	3	—	—	—
Sample E	12	45	3	—	—	—
Sample F (stored at room temperature for one to two years)	4	15	1	—	—	—
III	45	163	11	Trace	0	0
IV—						
Sample A	5	17	1	—	—	—
Sample B	4	11	1	—	—	—
V—						
Fresh	59	224	15	—	—	—
After five weeks at 37° C.	47	170	11	—	—	—
VI—						
Fresh	28	102	7	—	—	—
After three months at room temperature	27	96	6	—	—	—
VII	5	16	1	—	—	—
VIII	1	3	1	—	—	—
IX	1	5	1	2	7	1
X	3	10	1	18	64	3

[1] "—" indicates "not analysed".

due to the lack of the vitamin in the food be permitted. No reference whatever to the presence of riboflavin in the food would be allowed. The manufacturers of the other products analysed would not be permitted to refer to the presence of either vitamin.

Vegetable extracts are recommended by some authorities for the treatment of patients believed to be suffering from a vitamin *B* complex deficiency. For example, investigators of a well-known proprietary preparation state that one or two teaspoonfuls of this preparation given three times a day provide large doses of vitamin B_1. This amount actually provides about 0·5 milligramme of thiamin, which is quite inadequate for therapeutic purposes. The amounts of thiamin and riboflavin usually recommended for the treatment of mild vitamin deficiencies are about five milligrammes per day. This amount of thiamin would be provided by about six ounces of product I and twelve ounces of product II. The same amount of riboflavin would be provided by about five ounces of product I and seven ounces of product II. It is impracticable to give such large amounts.

Summary.

1. The thiamin and riboflavin contents of several brands of vegetable and yeast extracts have been determined.

2. While many of these products contain a high concentration of thiamin and riboflavin, the amount in a normal serving is insufficient to provide more than a small proportion of the human requirements of these vitamins.

References.

(1) E. C. Slater: To be published.

(2) E. C. Slater and J. Rial: "The Thiamin (Vitamin B_1) Content of Some Australian Biscuits and Breakfast Foods", THE MEDICAL JOURNAL OF AUSTRALIA, September 12, 1942, page 231.

(3) E. C. Slater and D. B. Morell: "A Modification of the Fluorimetric Method of Determining Riboflavin in Biological Materials", *The Biochemical Journal*, Volume XL, 1946; in the press.

(4) "Recommended Dietary Allowances", revised 1945; National Research Council, Reprint and Circular Series Number 122, 1945.

(5) L. J. Harris and Y. L. Wang: "Vitamin Methods. I. An Improved Procedure for Estimating Vitamin B_1 in Foodstuffs and Biological Materials by the Thiochrome Test Including Comparisons with Biological Assays", *The Biochemical Journal*, Volume XXXV, 1941, page 1050.

(6) Ministry of Food, United Kingdom: "Food Labels and Advertisements. Claims Regarding Vitamin and Mineral Contents", P.N. 3711, July 17, 1945.

Reports of Cases.

SPONTANEOUS RUPTURE OF THE SPLEEN IN MALARIA.

By WALLACE PULLEN,
Major, Australian Army Medical Corps.

ALTHOUGH several cases of spontaneous rupture of the spleen in malaria have been reported recently in medical literature,(1)(2)(3)(4)(5) the condition in Australia has been rare and may not be well known. The rarity of spontaneous rupture of the spleen in malarial infection has been mentioned by Manson-Bahr and Stitt. It is not unlikely, however, that further cases of this complication of malaria will be encountered amongst discharged soldiers in Australia. Accordingly the following case is considered worthy of record.

Clinical Record.

A warrant officer, aged thirty-one years, was discharged from the army on November 13, 1945, after fifty-three months' service. He had been stationed in New Guinea for nine months during 1945, and returned to Australia on October 25, 1945. He continued to take "Atebrin" in suppressive dosage, 0·1 gramme per day, until January, 1946, and until his present illness this soldier had not been in hospital with malaria. Late in February, 1946, he began to experience every two or three weeks "attacks of malaria", which he endeavoured to control by taking four or five 0·1 gramme tablets of "Atebrin" at irregular intervals. He continued to treat himself in this manner until July 15, 1946, but did not feel well at any time during this period.

On the morning of July 15 the patient was in this indifferent state of health. He had vomited several times during the preceding week and had experienced some vague upper abdominal pain. He travelled by motor-car to his place of employment, and after walking a short distance was waiting to commence work at 7 a.m. when he suddenly experienced a severe pain which seemed to "shoot from his right groin to his left shoulder", and he collapsed. He "came to" in the ambulance room, and the severe pain was then located mainly in the upper part of his abdomen and his left shoulder. He was admitted to an Australian general hospital for treatment.

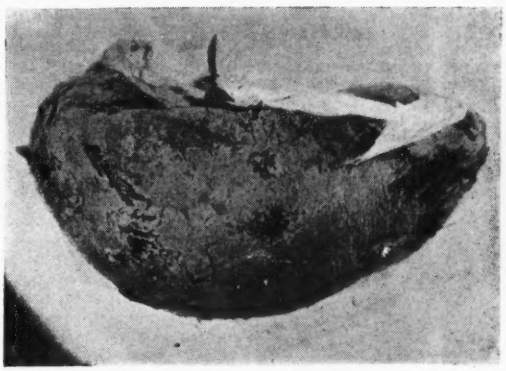

FIGURE I.

When first examined at 1.45 p.m., the patient was obviously ill; he had rapid, shallow respiration and generalized board-like rigidity of the abdomen. He was not particularly pale. The pulse rate was 100 per minute, the temperature was 98·6° F., and the respirations numbered 30 per minute. The systolic blood pressure was 95 millimetres of mercury and the diastolic pressure 60 millimetres. Parasites of benign tertian malaria were demonstrated in a routine blood film. The hæmoglobin value was 8·70 grammes per 100 millilitres (63% by the Haldane method) and his leucocyte count was 5,600 per cubic millimetre (neutrophile cells 88%, lymphocytes 10%, monocytes 2%, eosinophile cells 0, basophile cells 0).

This man had undoubtedly experienced an acute abdominal catastrophe. The diagnosis of rupture of a malarial spleen was considered, but was discarded because of the complete absence of any history of trauma, and a pre-operative diagnosis of probable ruptured peptic ulcer complicated by malaria was made. He was given an intravenous injection of quinine bihydrochloride (10 grains) before operation.

Operation was commenced at 3 p.m. under ether anæsthesia ("open" method). The abdomen was opened through a short right upper paramedian incision, and when the peritoneum was incised much fluid blood was seen. The spleen was found to be enlarged to about twice its normal size, and the splenic capsule was split and had been stripped from nearly the whole of its diaphragmatic surface (Figure I). The abdominal incision was enlarged by a transverse incision to the left costal margin. As soon as an attempt was made to mobilize the spleen, free hæmorrhage occurred which could be controlled only by digital compression of the splenic pedicle. Clamps were applied to the splenic pedicle. This controlled most of the hæmorrhage and allowed the spleen to be delivered and

removed. During this phase the patient's pulse was barely palpable. Hæmostasis was then secured, the splenic bed was drained through the left flank and the abdominal wall was closed in layers. The duration of the operation was one and a half hours.

Noteworthy features of the operation were (i) the friability of the spleen, (ii) the difficulty of distinguishing between blood clot and the splenic pedicle, (iii) the large volume of blood which was present under the left cupola of the diaphragm.

An intravenous infusion of serum was commenced immediately the peritoneum was opened, and during the following one and a half hours the patient received four litres of serum followed by one litre of blood. This fluid was delivered in a continuous stream, and the rapid introduction of fluid certainly saved the patient's life. His condition at the end of operation was fair. His pulse rate was 120 per minute, his systolic blood pressure was 130 millimetres of mercury and his diastolic pressure 90 millimetres.

On his return to the ward, the patient was given a further half litre of blood by slow drip transfusion. At 7 p.m. he experienced a severe rigor, probably malarial,

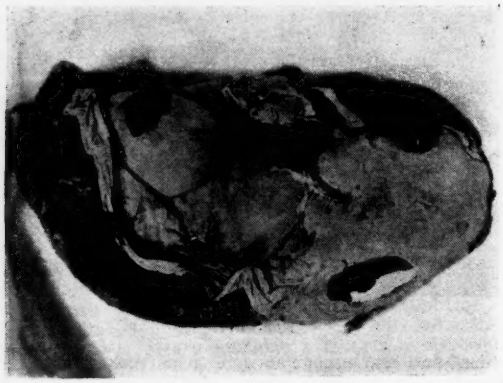

FIGURE II.

and his temperature rose to 103° F. Accordingly he was given 10 grains of quinine bihydrochloride intravenously, and to alkalinize his urine in case the rigor was the result of his blood transfusion, he also received 10 millilitres of a four molar solution of sodium lactate and 10 millilitres of a four molar solution of sodium bicarbonate. Thirty-six hours after operation his hæmoglobin value was 7·25 grammes per 100 millilitres (52% by the Haldane method), and on the twenty-first day it was 11·6 grammes (84% by the Haldane method).

Apart from a little post-operative vomiting for one day, his subsequent progress was uneventful. To guard against possible infection he received 720,000 units of penicillin by intramuscular injection, 15,000 units every three hours for six days. The tube drained some blood-stained fluid for twelve hours and was removed in forty-eight hours. The wound healed by first intention, and the patient was out of bed on the twenty-first day.

For his malaria the patient received 10 grains of quinine bihydrochloride intravenously twice a day for forty-eight hours, followed by 0·1 gramme of "Atebrin" three times a day for five days; this in turn was followed by 0·01 gramme of "Plasmoquine" and 0·1 gramme of "Atebrin" three times a day for a further three days. After the initial rigor during the evening following his operation, no further rise of temperatnre occurred.

The spleen was submitted for examination to Colonel A. H. Tebbutt, who made the following observations. The spleen weighed 18 ounces and the capsule was torn and ragged, the surface of the organ being exposed on its diaphragmatic aspect (Figure I). Its dimensions were 15·0 by 10·0 by 7·0 centimetres. On microscopic examination the Malpighian bodies were plentiful and the trabeculæ were not unduly thickened. Abundant pigment and numerous splenocytes were present. No malarial parasites could be demonstrated in the formalin-fixed sections stained by Giemsa's method.

Discussion.

Prior to World War II, few medical practitioners in Australia had reason to make themselves familiar with malaria or its complications, and most students graduated without seeing a patient suffering from malaria. During the course of the campaign in the South-West Pacific Area a large number of junior and some senior members of our profession saw many patients suffering from malignant and from benign tertian malaria; but these patients received such early and efficient treatment that the potential morbidity and mortality rates of this condition have tended to be under-estimated. Especially is this so in the case of benign tertian malaria, whose mortality rate has been regarded as negligible. It is only now when the majority of servicemen have been demobilized and have been removed from constant medical supervision that the disease is being seen as it occurs in civilian communities. Accordingly severe anæmia, prolonged ill-health due to irregular self-administration of "Atebrin" in an attempt to ward off attacks and remain at work, and complications such as occurred in this case, can be expected to be seen more frequently, especially during the next year or two.

Hughes and Niesche[1] in 1945 reported a case of spontaneous rupture of the spleen in an Australian soldier who had just commenced treatment for benign tertian malaria. Bowden,[2] in April, 1946, reported the results of two autopsies on discharged Australian soldiers whose deaths were due to spontaneous rupture of the spleen, death on each occasion occurring before the arrival of the medical attendant. In both instances malaria appeared to be the ætiological agent. In the present case, the patient had undoubtedly suffered from imperfectly treated benign tertian malaria for a number of months. He will not admit having received even a minor injury during the morning preceding his collapse, and the spleen ruptured whilst he was standing waiting to start work. In contrast, however, with the generalized abdominal rigidity which subsequently developed in this case, the patient reported by Hughes and Niesche[1] had only minimal abdominal rigidity, even though three litres of blood and blood clot were present in the peritoneal cavity. Thus it will be seen that rupture of the malarial spleen can occur either with or without pronounced abdominal rigidity. Even more important, it can occur in the complete absence of any history of injury.

The pathological lesion in this condition is a splitting and stripping of the splenic capsule,[1][2][4] (Figure I), rather than a tear of the splenic substance. In Manson's textbook on tropical diseases[3] one finds the following statement: "Occasionally the spleen may rupture spontaneously owing to its rapid increase in size during the course of an attack of fever." Bowden[2] thinks that the precipitating cause is a subcapsular hæmorrhage from the diseased splenic sinusoids, and that this hæmorrhage "subsequently bursts the capsule of the greatly over-distended and diseased organ". This view is supported by de Saram and Townsend,[4] who found a large subcapsular clot at autopsy. No definite subcapsular clot was noted in the present case, although blood clot was present over the posterior aspect of the stripped diaphragmatic surface of the spleen.

An interesting point was the rapid deterioration in the patient's condition once the peritoneum was opened. Grey Turner emphasizes this fact, and states that hæmorrhage from a ruptured viscus often becomes brisker when the pressure from the tense abdominal muscles is abolished by anæsthesia and the incision of the operation.

During the recent world war the medical profession has become accustomed to the principle of massive fluid replacement in the seriously injured. Giblin[7] cites the

case of a soldier wounded in the Western Desert, into whom, in the three hours preceding operation, 4·5 litres of blood and 2·5 litres of serum were infused, and during the operation a further 1·5 litres of blood and 1·5 litres of serum were given—a total in all of 10 litres of fluid. The patient who is the subject of the present communication weighed 11 stone, and received four litres of serum and one litre of blood during the course of the operation (one and a half hours) and half a litre of blood subsequently. He therefore received by intravenous injection in one and a half hours a volume of serum and blood almost equal to the normal blood volume.

When it was decided to employ intravenous therapy in this case, blood was not readily available, and it was necessary to have recourse to serum alone. No less than four litres of serum were administered in approximately seventy minutes, with entirely satisfactory results. It is apparent that the patient's hæmoglobin value must have fallen to at least 3·6 grammes per 100 millilitres (26% by the Haldane method) before he received any infusion of blood itself. This case serves further to emphasize that in an emergency of this type, the patient is able to survive with a low hæmoglobin value, provided his circulating blood volume is maintained.

Towards the end of the operation, one litre of blood was administered and it was noted that after this the pulse rate had fallen from its peak of 160 per minute to 120 per minute. This final litre of blood raised the diastolic blood pressure to 90 millimetres of mercury. However, the patient showed no signs of cardiac or respiratory embarrassment from the rapid introduction of these five litres of fluid.

The only discovered reference to mortality in this condition is that published for spontaneous rupture of the malarial spleen when malaria is used as a therapeutic agent in neurosyphilis.[6] Under these conditions, only one patient has survived in 31 cases reported. The condition is thus serious. Among the cases recently reported, including the present case, three patients survived[1][3] and three came to autopsy.[2][4] In the latter three are included Bowden's two cases, which appeared to be due to malaria.

Summary.

1. A case of spontaneous rupture of the spleen associated with benign tertian malaria is reported.

2. The likelihood that this surgical emergency may be encountered more frequently in the near future is advanced.

3. Attention is drawn to the importance of including this condition in the differential diagnosis of an acute upper abdominal emergency occurring in discharged service personnel.

4. The importance of maintaining the blood volume even at the risk of dangerously lowering its hæmoglobin content is stressed.

References.

[1] K. T. Hughes and F. W. Niesche: "Spontaneous Rupture of a Malarious Spleen Followed by Left Subphrenic Abscess with Recovery", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1945, page 300.

[2] K. M. Bowden: "Spontaneous Rupture of Spleen with Notes on Two Cases", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1946, page 506.

[3] S. E. Russ and J. S. Gaynor: "Spontaneous Rupture of a Malarial Spleen", *The Journal of the American Medical Association*, Volume CXXVII, March 3, 1945, page 158.

[4] G. S. W. de Saram and R. F. Townsend: "Spontaneous Rupture of Spleen in Malignant Tertian Malaria", *The Lancet*, Volume I, 1946, page 584.

[5] H. S. Read, L. I. Kaplin,, F. J. Becker and M. F. Boyd: "Complications during Therapeutic Malaria", *Annals of Internal Medicine*, Volume XXIV, March, 1946, page 457.

[6] L. I. Kaplin, H. S. Read and D. F. Mullins: "Spontaneous Rupture of Spleen during Malarial Therapy. Report of a Case", *Annals of Internal Medicine*, Volume XXIV, April, 1946, page 707.

[7] T. Giblin: "Abdominal Surgery in the Alamein Campaign", *The Australian and New Zealand Journal of Surgery*, Volume XIII, July, 1943, page 37.

[8] P. Manson-Bahr: "Manson's Tropical Diseases", page 95.

DEMENTIA PARALYTICA OCCURRING IN CHRONIC SCHIZOPHRENIA.

By A. T. EDWARDS, M.B., D.P.,
Sydney.

IN *dementia paralytica* the pre-psychotic personality is of importance, as to a large extent it determines the presence and content of the delusions which develop as a result of the organic changes in the brain. Although the grandiose, expansive delusions which are characteristic of this disease probably develop as over-compensation for the consciousness of the failing mental ability, such delusions are more common in patients of a cycloid, outgoing personality-type than in those who had presented the more egocentric schizoid characteristics. It would be expected therefore that *dementia paralytica* developing in a patient suffering from schizophrenia of many years' duration would fail to produce any of the florid delusions of grandeur usually found in that disease.

The occurrence of the two disorders in the one patient is rare. It is not uncommon, of course, for *dementia paralytica* to unmask schizophrenic tendencies, but the patient with chronic simple schizophrenia rarely runs the risk of contracting syphilis. I am not aware of any similar case having been reported previously.

Clinical Record.

A.B. was first admitted to hospital in July, 1924. His family history contained no indication of hereditary disorders. His personal history was typical of simple schizophrenia. He had left school at the age of fifteen years, having been a bright pupil except for the last two years at school, during which there was some falling off in his work. Whilst at school he showed no interest in the usual sporting activities and had few companions, preferring to go out by himself. Even in his schooldays it had been observed that he used to stand about wrapt in thought. During adolescence, he avoided the company of girls. At the age of eighteen years he was for some months unable to work, as for a period following an attack of acute rheumatic fever he was dull and retarded and displayed lack of interest. He was not admitted to hospital and recovered sufficiently to resume his occupation of French polisher. Three years later, at the age of twenty-two years, he gave up work, and for four years did nothing but a little desultory work around the house. He avoided company and showed no interest in anything but his meals. At the age of twenty-six years he was certified insane, as during a quarrel he had attacked his father with a hammer

On his admission to hospital, the patient was correctly orientated, dull, retarded and lacking in interest; he complained without emotion that he was not appreciated. He accepted his detention with equanimity. Physically he was a tall, rather gaunt young man of asthenic habitus. No abnormality was found on physical examination. The blood failed to react to the Wassermann test. After five years, his parents commenced to take him out for periods of a few months at a time, and finally, although he had not improved mentally, he remained on leave from 1933 to 1946. During these years he remained idle and dull and rarely conversed, his speech showing typically schizoid blocking and poverty of ideation.

He was returned to hospital in January, 1946, after an episode of foolishly indiscreet exhibitionism. No mental change from his usual condition was noted, except that he had developed foolish euphoria in place of his previous affective dulness. However, it was noted that his pupils were small and reacted to accommodation but not to light; one was irregular in outline. The knee jerks were exaggerated. No Rombergism was present. The blood reacted to the Wassermann test and to the Kline test (+++). The cerebro-spinal fluid yielded a partial positive reaction to the Wassermann test; seven cells were counted, the globulin content was indefinite, and Lange's colloidal gold test produced the following result: 4433211000.

Comment.

The physical signs and serological tests leave no doubt that the patient had contracted parenchymatous neurosyphilis. He himself stated that he had developed a penile sore during his absence from hospital in about 1931.

Reviews.

CHEMISTRY FOR MEDICAL STUDENTS.

THOSE who believe that worthwhile professional training is built almost always on a well designed introduction to basic preclinical science will be very interested in a new volume dealing with one aspect of the matter, namely, chemistry for first-year medical students. Mr. Klyne, in "Practical Chemistry for Medical Students",[1] has given an account of the practical chemistry taught to medical students in Edinburgh. The work covered is in the fields of general, physical, inorganic and organic chemistry. While the book may contain a few matters of technical fact which some teachers of chemistry regard as arguable, there is a great deal in the way of new material and new methods of presentation for a book of this kind. It is much more than the usual manual of definite instructions for particular experiments. It grafts laboratory work on to the students' course in theory of chemistry very successfully and for some students it will probably present the theory in a new light. The insertion of appropriate paragraphs on medical applications and pharmacology is a sound teaching aid.

About one-half of the contents represents the usual course followed. Thus the selection of material available is very flexible. The sections summarizing ideas about evidence, design of experiments, the keeping of records, purity of substances, specific and group tests, control tests, the logic of analysis, sensitivity of tests, meaning of figures, mistakes, repetition of measurements, calibration and statistical method are valuable adjuncts to the formal chapters. Each section of the book is provided with a suitable list of reference books covering the relevant theory and also more advanced practical manuals. The printing and setting out are excellent.

We can say that this is a very good book for medical students and that if more of them studied practical chemistry from it their initial experience with physiology and biochemistry would be more fruitful. The remark applies equally well to students of veterinary science and dentistry. The last chapter of this book is the first chapter of a manual of practical biochemistry for such students.

"ANATOMICAL EPONYMS."

THE subject matter of a book bearing the title "Anatomical Eponyms" is fully and clearly defined by the author, Jessie Dobson, B.A., M.Sc., as "a biographical dictionary of those anatomists whose names have become incorporated into anatomical nomenclature, with definitions of the structures to which their names have been attached and references to the works in which they are described".[2] Quite obviously it represents a laborious research extending over a number of years in the collection of the necessary historical data; and it reflects credit upon the anatomy department and medical library of the University of Manchester.

In a foreword, Professor F. Wood Jones deplores the tendency to eliminate all eponyms from anatomical nomenclature, as he fears that it may deprive the student of the incentive to gain an appreciation of the historical background of the subject. In a short introduction, the author proceeds to an illuminating discussion on the merits and demerits of this policy which has provided a long bone of contention for anatomists since they first met at Basle in 1895 to decide the issue. However, those who care to read what the author has to say on the matter will find themselves in a much better position to offer an opinion; there are many sides to the question, and it seems rather important that unanimity should be attained in the not-too-far-distant future.

The book contains a surprisingly long list of names, many of them well known and almost as many insignificant ones, all arranged in alphabetical order. Each subject is accompanied by a severely abbreviated biographical outline in which great pains have been taken to supply the exact place and date of birth and death. The eponymous anatomical structures with the modern terminology are then listed and biographical references are given to indicate the work in which the original description first appeared. The names of Jose Antonio Serrano and Roy Lee Moodie, two authors who have previously explored this territory and to whose work the author of this book acknowledges her indebtedness, appear frequently in the text as their facts come up for correction—and quite rightly so in the interest of historical accuracy.

For a like reason attention might be drawn to a few perplexing points noted towards the end of the book and which may be ascribed either to typographical error or to the onset of weariness in the reading of the proofs. On page 188, the date for the birth of Frederick Ruysch should be 1638 instead of 1838. On page 202, it is stated that Niels Stensen was appointed professor of anatomy at Copenhagen in 1672; but this does not seem consistent with the statements made by others that he settled in Florence in 1667, where he was appointed physician to the Grand Duke Ferdinand II, and where his conversion from Lutheranism to Catholicism took place. On page 205, it is stated that Jan Swammerdam's famous "Bible of Nature" was published at Leyden in 1737, and was later edited by Boerhaave and republished in Leipzig in 1752. It has been said that Boerhaave found the copper plates that the author had prepared for it and published it at his own expense in 1737. On the same page, the name of Franciscus Sylvius is written as "de la Boe". He was christened François de le Boe in accordance with the Languedoc usage of the original name of Dubois. Finally, in the useful bibliography at the end of the book, the name of William MacMichael might have been given as the author of "The Gold-headed Cane" instead of William Monk, who merely edited the third edition in 1884.

The author is to be commended for the thorough work put into the compilation of this valuable book, and it should have the entire approval of all anatomists.

FLORENCE NIGHTINGALE.

THE publishers of "Notes on Nursing", by Florence Nightingale, which now appears as a facsimile of the first edition, are to be commended for making this work, which is so full of interest, available to the student of medical and nursing history.[1] The author meant the book to be more or less a handbook for the guidance of nurses, but today it can be looked at only from the historical aspect, as most of the nursing advice is naturally out of date. However, the quiet philosophy that runs through the book is still applicable, and all nurses could benefit from the counsels of this famous woman, whose pioneering work did so much for both her profession and for the treatment of the sick. There are many aspects of nursing dealt with which appear rather humorous today, and perhaps the most piquant example of this is: "A nurse who rustles is the horror of a patient, though perhaps he does not know why. The fidget of silk and of crinoline, the rattling of keys, the creaking of stays and of shoes, will do a patient more harm than all the medicines in the world will do him good." The book can also be recommended as a fine example of the use of correct English, a language that is nowadays found in a gradually decreasing number of books, and the wide knowledge of the writer is shown by her very apt use of quotations which range from Homer to Shakespeare. All modern nurses will be in complete agreement with the statement in which the author deplores the fact that nurses should have to scrub floors, but until the time when there is a "new deal" for the nursing profession, such tasks will often be the nurse's lot.

---

[1] "Practical Chemistry for Medical Students", by William Klyne, M.A., B.Sc. (Oxon.), with a Foreword by G. F. Marrian, D.Sc. (London), F.R.S.; 1946. Edinburgh: E. and S. Livingstone Limited. 8½" × 5½", pp. 476, with illustrations. Price: 20s.

[2] "Anatomical Eponyms: Being a Bibliographical Dictionary of those Anatomists whose Names have become Incorporated into Anatomical Nomenclature, with Definitions of the Structures to which their Names have been Attached and References to the Works in which They are Described", by Jessie Dobson, B.A., M.Sc., with a Foreword by F. Wood Jones; 1946. London: Baillière, Tindall and Cox. 8½" × 6¾", pp. 250. **Price: 30s. net.**

[1] "Notes on Nursing: What It Is, And What It Is Not", by Florence Nightingale; a facsimile of the first edition published in 1860 by D. Appleton and Company, New York, with a Foreword by Virginia M. Dunbar; 1946. New York, London: D. Appleton-Century Company Incorporated. 7½" × 5", pp. 149. **Price: $2.00.**

The Medical Journal of Australia

SATURDAY, FEBRUARY 22, 1947.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

A CALL TO DUTY.

THE letter of Major-General S. R. Burston, Director-General of Medical Services, which is published in this issue is a frank statement and an appeal for medical recruits that should find an echo in the ranks of the younger graduates of this country. Australia was privileged to take an important part in the war in the Pacific against Japan and her widely ranging armies. Her sailors, soldiers and airmen gave a good account of themselves and won the respect and friendship as well as the admiration of her allies. They were true to the British tradition and brought fresh lustre to that already gained by Australians in other theatres of war and in other days. The medical services took a worthy part in the whole campaign and Australian medicine has every reason to be proud of their achievements. But the capitulation of Japan did not mark the end of the war. Japan had been defeated; her sailors and her soldiers and her airmen had to face their defeat. We do not know a great deal about the psychology of the Japanese people, but we do know that they could not be left floundering in their ignominy, with no thought other than revenge, with no intention other than the rebuilding of their engines of war and with no general enlightenment of the people as a whole. Common humanity, apart from the future safety of all the peoples in the Pacific area, made it necessary that some attempt should be made to reconstruct Japan and the Japanese economy on something approaching a democratic basis. To have shirked this duty would have meant that the flower of our manhood died in vain and that many thousands endured to no purpose sufferings and hardships of which we can have only a glimmer of understanding; it would have branded us as a nation devoid of imagination and resource. We may therefore conclude that the task of the British Commonwealth Occupation Force in Japan is to complete the job of winning the war by winning the peace. Australia cannot allow others to finish what she with them began and carried through to the final stage. In these circumstances General Burston's letter must be regarded as more than a statement and an appeal; it shows an obligation to be a privilege and is a call to duty.

The position in Japan is clear. There are in that country about 10,000 Australians. They are entitled to a first-rate medical service provided by doctors of their own country. They should not be denied this right; if more volunteers for the medical service are not forthcoming they will not receive their due. If this should happen it would not be very welcome news to the relatives of Australians in Japan, and many Australian doctors must be numbered among those relatives. The explanation given by General Burston of the reasons why a relatively high number of medical officers are needed are convincing. And we must remember that the medical profession of the Commonwealth will be the first to complain if by reason of inadequate or unsuitable personnel the medical treatment of Australian soldiers is not what it should be. This matter was considered by the Federal Council of the British Medical Association in Australia at its last meeting in Adelaide (see THE MEDICAL JOURNAL OF AUSTRALIA, December 21, 1946, page 886), and as a matter of fact it was on the suggestion of the Federal Council that General Burston wrote his letter to the Editor of this journal. The members of the Council thought that the difficulties of securing recruits would not be great if the pay and conditions were satisfactory. General Burston has set out as an addendum to his letter the pay that is given to the officers holding different ranks in the Occupation Force. When it is realized that a young graduate starts duty with the rank of captain and that his pay is not subject to income tax while he is serving overseas, the remuneration compares more than favourably with the salaries paid to resident medical officers of hospitals. Of the conditions it can only be said that as far as can be discovered the environment of medical officers and the general provisions made for them leave little if anything to be desired. The work to be done by the medical officers will cover all the needs of the ten thousand men under their care, and it is also to be noted that medical officers of the British Commonwealth Occupation Force are responsible for the medical care of British civilians in Japan and their families. Further, as there is no organized public health system in Japan, it may be expected that practical experience in public health control will be gained and that it will be of no small extent. It may be that the prospect of a lengthy term of service will act as a deterrent. The Government promises that officers will be released as soon as possible after a period of twelve months' service, but that in no circumstances will they be retained for longer than eighteen months. There is no justification for looking on service in this sphere as being something of the nature of a "Kathleen Mavourneen sentence". Another argument, and by no means the least important, that we would advance in an effort to see that the need is met, is that young Australians are hereby offered a most unusual chance to see something of the outside world and of the life of a people completely different from their own. Whatever we may think of the Japanese military class and of the way in which the Japanese people have always been ruled by an exclusive caste system, Japan is a country of the most absorbing interest and its people have many

qualities that are worthy of study. Most people will agree that a medical graduate fresh from the schools gains in every way and particularly in the widening of his mental horizon by a short sojourn in the entirely new surroundings of a foreign country.

If Australia cannot secure the medical officers for Japan whom she needs, one of two things will happen. Either Australian troops will have to be withdrawn from Japan or else Australia will have to go as a suppliant to the Old Country asking for doctors whom she herself cannot supply. Neither of these possibilities bears contemplation. Both would be an example to the world of national and professional failure. Anything that can be done to prevent such a calamity must be done. We should like to see some intensive recruiting undertaken by a senior officer with a junior or two at hospitals and other places where young graduates are to be found. We feel certain that when the position is seen in its true light the response will be more than sufficient.

Current Comment.

TUBERCULOSIS IN GREECE.

SINCE the end of the European war the effect of the years of disruption of an ordered family and community life has in many countries been sadly apparent. During the war the usual plagues that have been accompaniments of previous conflicts have been on the whole modified by modern methods of prevention. Typhus is no longer a national menace if the correct measures are taken; influenza in its pandemic form would probably be more easily controlled too, though the world has for some reason been lucky in this respect, for no serious general outbreak occurred. But tuberculosis, though not now riding so high on the crest of the wave of high morbidity and mortality, still lies in wait for the community overtaken by want. In Greece the problem of tuberculosis was before the war one which troubled the health administrators, and in spite of the political instability that has in the past made difficult the pursuing and financing of a strong policy, elaborate plans were ready for putting into effect an ambitious programme of anti-tuberculosis work. Then war came, and this unhappy country has known devastation and destruction, and its people have suffered hunger and privation under oppressive and chaotic conditions. Studies of these post-war conditions with reference to tuberculosis in Greece have been made by Peter A. Theodos, who for a year worked with the UNRRA Greece mission.[1] Theodos points out that it is not easy to produce accurate figures, even for periods before the war, for notification was not compulsory and the mortality statistics are probably reliable only in the large centres. The incidence of the disease in rural areas is hard to assess, as numbers of deaths occur in urban hospitals. The pre-war figures show a general mortality rate of 145 per 100,000 for the whole of Greece in 1934, falling to 116 in 1938. The recent work cannot supply any real comparison with these figures, but is based on much more scientific methods, giving the incidence rates. The pre-war figures show that rates were then higher in the northern and urban areas, and improved in proportion as conditions of living were better. Recent studies have been initiated by means of mass radiography and follow-up investigation, and Theodos states that so far as these have proceeded they show that in approximately one in ten of urban dwellers there is evidence of some tuberculous lesion of clinical significance. Of these, about one-third are active lesions, the proportion rising somewhat in certain industrial groups. Indications are that rural groups will show only half these rates. The estimated death rates from tuberculosis in these people of Greece under present conditions is given by Theodos as four times greater than that found in 1938. There is no doubt, therefore, of the seriousness of the position. The desirable standard of two beds being available for patients with tuberculosis for every person who dies cannot even be approached in Greece. Even the small numbers available have been reduced by damage and looting during the period of occupation by the Germans and during the civil war. Even if one bed per annual death was aimed at, the desired total would be 35,000, whereas with the welcome help of the UNRRA organization only 7,651 beds were expected to be in use by the end of 1946. Unfortunately, despite the interest of the health administration, control and coordination really do not exist as yet, and funds are small. Theodos states, however, that epidemic conditions do not exist, although it cannot be denied that the position has deteriorated greatly since the occupation. The state of the peasant in rural areas is described as deplorable; with fields laid waste and improvised equipment, with insufficient shelter and food, he has been in an unhappy degree of malnutrition. UNRRA has of course brought in quantities of food and has tried to cope with the problems of distribution. Attempts are being made also in the larger centres to extend dispensary facilities, not only by the government but also by voluntary bodies. The incidence of tuberculous disease among children has been alarming and many have died from disease of the reinfection type. It is hoped that this danger may be met by use of the "B.C.G." vaccine, which was introduced before the war into dispensary work in Greece, and the continued interest of the Greek Red Cross should stimulate the use of this measure and yield results. Clinical research has been greatly hampered, as one might expect, but there seem to be large numbers of infections of the rapidly spreading type. The lack of a uniform classification of the disease leads one to hope that the medical world will try to bring about agreement on this really important matter. There is still too much insistence on a classification based on radiological appearances.

Finally, Theodos states that the problem of tuberculosis in Greece is not merely a local one, and that it should be considered by any health organization set up by the United Nations Organization. In Australia we too wish to see some unified plan, but we must accept in this country all responsibility for control of tuberculosis affecting Australian people, which of course affects migrants also. No plan for health or for social security is complete without effective measures for both attack and defence against this active enemy.

[1] *Diseases of the Chest*, November-December, 1946.

THE PRESERVATION OF LIQUID PLASMA.

THE vast experience of this war has settled a number of problems concerning the use of blood and blood substitutes in those conditions in which blood loss or fluid loss has occurred to a serious extent. Work is still going on in the effort to establish some substitute which does not require a human donor, and of course the intricate and important investigations on agglutinins and on the applications of plasma fractions to practical therapeutics are engaging the attention of many researchers. But the indications for the choice of biological fluids are fairly well established, if due consideration is paid to the conditions under which treatment is being carried out. It is recognized, for example, that whether liquid or dried plasma is used will depend on circumstances of transport and perhaps of storage. It is this latter question that has aroused a good deal of attention for some years. In Australia serum was preferred to plasma, and with an expeditionary force likely to be engaged in a tropical climate it was necessary to know if any deterioration would occur rapidly. This was all the more important at a time when the technique of drying plasma and serum was not so clearly understood or based on so wide an experience as it is now. This question may be taken now to be fairly well settled, for

liquid plasma and serum have been kept successfully for considerable periods without harm, even without refrigeration. Australian workers have made pioneer observations on the keeping of serum at room temperature.

A study has been published in America dealing with the time factor in the preservation of plasma. E. L. Lozner, Sonia Lemish, A. S. Campbell and L. R. Newhouser have amplified previous studies carried out on plasma kept at room temperature for two years and now present the results of examining similar material kept for three years.[1] Numbers of observations are available on this subject, but it was uncertain in some cases whether changes such as cleavage of the plasma proteins might have taken place. In the present instance the plasma was subjected to examination by physico-chemical methods as well as by the usual tests for sterility and total quantities of non-protein nitrogenous content. Chemical analyses were made of the non-protein and α-amino nitrogen, osmometric measurements were made by dialysis, and electrophoretic diagrams were studied to find any significant distribution of the protein fractions. In addition, a clinical analysis of several thousand administrations of plasma over one year old was made and compared with a control series of dried plasma.

The conclusions of these workers are that no significant alterations in the physical or chemical state of liquid plasma can be found after three years, although the expiry date adopted by the National Institute of Health is set at eighteen months. It is noted that at the end of six months blood coagulation factors, complement and probably other antibodies have disappeared from the plasma so far as any possibility of therapeutic benefit from them is concerned, therefore such plasma would not be of value *per se* in infections and in hæmorrhagic states. This of course may be taken for granted. It was found that slight physico-chemical changes took place, for example, the almost complete disappearance of the γ globulin and fibrinogen, and that there was a slight increase in the colloid osmotic pressure and the viscosity of stored plasma. No contra-indication could be found against the use of the plasma. Investigation of the effects of administration of plasma held in storage for over one year gave satisfactory information. The age of the plasma varied from twelve to forty months, though the numbers of records dealing with samples aged over thirty months was relatively small. The clinical effects of transfusions were reported as being good, and no untoward proportions of reactions were observed. In fact the reaction rate with the stored plasma was significantly less than that found with commercially prepared dry plasma. These observations confirm the safety of liquid plasma, provided it is prepared with due precautions and administered only after close scrutiny of the material.

THE PSYCHOLOGY OF THE TUBERCULOUS.

IN a characteristically breezy and arresting paper, the repercussions of which should enliven the correspondence columns of *The Lancet* for a while, Dr. George Day has announced his decision that 30% of the whole sanatorium population are sick in mind as well as in body.[2] By this he does not imply that 30% of tuberculous subjects view the world in the light of delusional or hallucinatory experience or of disorder of thought or of profound disturbance of feeling; in fact he is careful to point out that the paper was written before his association with army psychiatry taught him correct terminology, and therefore he does not define terms. His statement, he explains, is based on his discovery by interrogation of his patients, especially as his shyness has worn off and as he has come to use dream analysis, that there are many who have come to need tuberculosis or some similar chronic incapacity by reason of painful mental conflict or by reason of a worrying or a "frightening and suicidal" time. This incapacity will continue to be necessary to them unless something in their life-pattern suffers change. Day proceeds to support this conclusion by a delightful account of the histories of some half-dozen patients, written in a buoyant colloquial style that we do not remember to have seen in medical literature since the appearance of the late Frank Kidd's little book on "Common Diseases of the Male Urethra". If some said that Kidd embellished his histories a little to lend an air of verisimilitude to an otherwise bald and unconvincing narrative, they were none the less instructive and all the more memorable for that; we should not feel nettled to learn that Day had drawn the long bow just a little.

It is not a new idea that consumption symbolizes spiritual suicide or self-immolation. Day's version is that:

> tuberculosis provides means for a flight from frustration, for self-punishment and all those other dark urges which are continually shipwrecking our best behaviour. . . . I believe this with half of me, but I cannot be whole-hearted until we can measure in grammes per litre the presence or absence of disease-resisting substances in the body fluids.

However, he tentatively concludes that persons who develop pulmonary tuberculosis in the absence of any of the classical physical environmental causes, such as malnutrition, overcrowding, bad working conditions and exposure, often do so because of "dis-ease" in their psychological environment—their relation to themselves or to the world outside. A somewhat similar idea, illustrated by examples, was expressed by D. Anderson, writing in this journal a few years ago:[1]

> . . . not only these [malnutrition and debility]—chronic over-fatigue and nervous tension, especially of a depressing kind, frequently determine the onset of serious lung trouble in young adults, who had been up till then apparently never a penny the worse for tuberculous infection in childhood.

No doubt there will be many who will deny that there is any factor other than fatigue operating to reduce resistance to tuberculous disease in those who have been a prey to violent nervous storms or stresses and who will hold out physical rest aided by collapse therapy in one or other of its forms as the logical remedy, universal in applicability, for this fatigue and its physical consequences. However, Day has pointed to cases in which patients declined in health despite the most intensive modern treatment, but began to improve when their nervous tension was discharged. Wherever the truth lies, it seems certain that not even the most mechanistically minded physician who treats tuberculosis can neglect to explore carefully and sympathetically his patients' background, interests and fears. Day's method of collaborating with his patients in dream analysis will surely commend itself to very few, though it must be a delightful game for the sanatorium doctor with plenty of time and a greater interest in people than in their bodies. No doubt it will sometimes serve in an acceptable fashion to help the doctor to bring the preoccupations of his patient's troubled spirit into clearer perspective and the light of day. This, however accomplished, would seem to be a necessary adjuvant to the treatment of tuberculosis as of many other diseases.

MEDICAL PHOTOGRAPHY IN GREAT BRITAIN.

THE formation of a Medical Group by the Royal Photographic Society of Great Britain is announced in *The Photographic Journal* of October, 1946. The Association of Scientific Photography has recently been amalgamated with the Royal Photographic Society and the new move is probably one of the first fruits of the amalgamation. The object of the group is "to promote the use and advancement of photography in all branches of medical science". Membership will not be confined to persons holding medical degrees or diplomas. This group, it is hoped, will raise the general standard and promote the teaching of medical photography. C. P. G. Wakeley is the first chairman.

[1] *Blood*, November, 1946.
[2] *The Lancet*, November 16, 1946.

[1] THE MEDICAL JOURNAL OF AUSTRALIA, September 23, 1944.

Abstracts from Medical Literature.

MEDICINE.

The Action of Magnesium on the Heart.

P. SZEKELY (*British Heart Journal*, July, 1946) discusses the action of magnesium on the heart and reports his findings. His study is based on 26 cases; thirteen of the patients had paroxysmal tachycardia, nine had auricular fibrillation, and four had purely extrasystolic arrhythmia. The effect of intravenous injections of magnesium sulphate in doses of 20 millilitres of a 20% solution was studied in these cases, and also its effect on normal persons with sinus rhythm. No significant effect was observed on the normal conduction system, and only minor changes in the normal electrocardiogram. Of thirteen patients with paroxysmal tachycardia, nine were affected by magnesium sulphate; in five the effect was lasting, and in four it was only temporary. In four of these cases, sinus rhythm was restored, in one the tachycardia was replaced by the original rhythm of auricular fibrillation, and in the remaining four cases variable degrees of auriculo-ventricular block appeared. The author observed that a dose of magnesium sulphate that had no appreciable effect on the normal conducting system might depress impulse production in heterotopic centres. All parts of the conducting system may be depressed in cases of increased myocardial irritability. The author states that the use of magnesium sulphate as a therapeutic agent in paroxysmal tachycardia is justified, and that the use of the drug by the intravenous route is safe, though its effect may be only temporary. Extrasystoles caused by full digitalization were either completely abolished or altered by magnesium, while extrasystoles from other causes were not affected by it. Further investigation of the relationship between magnesium and digitalis is required. Auricular fibrillation was not affected by magnesium. The conclusions reached apply only to the human heart and to doses of magnesium sulphate as specified.

Salicylates in Rheumatic Fever.

H. A. WARREN *et alii* (*American Heart Journal*, September, 1946) have shown that sodium salicylate in amounts of 10 to 16 grammes (150 to 240 grains) per day will reduce the temperature more quickly in acute rheumatic fever than will small doses. Likewise large doses appear to offer an advantage in the treatment of acute rheumatic pericarditis. The use of sodium salycylate in the doses mentioned will not prevent the development of cardiac damage or the progression of preexisting cardiac disease. Large doses of salicylate will not serve to shorten the period of rheumatic activity, as indicated by acceleration of the sedimentation rate, any more than will small amounts, and they will not prevent the development of polycyclic attacks. If large doses of salicylate are given, the premonitory signs of intoxication must be recognized early and the dose must be reduced. The serious toxic reactions are always preceded by hyperpnœa which may be followed by tetany, progressive maniacal delirium and loss of consciousness. Pustular acne is not uncommon. When such symptoms appear sodium bicarbonate must be given and intravenous saline infusions may be helpful.

The Relief of Ascites.

R. C. CROSBY AND E. A. COONEY (*The New England Journal of Medicine*, October 17, 1946) describe the successful treatment of ascites by the insertion of a "button", made of glass and shaped something like a cotton reel, into the anterior rectus sheath with one of its flanges lying just inside the peritoneum. The rectus sheath fits between the flanges, and the distance between the flanges can be varied to accommodate various thicknesses of the sheath in different patients. The anterior sheath is sutured tightly behind the outer flange and the skin is closed. The function of the button is simple: it allows ascitic fluid to pass through its hollow core into the subcutaneous tissues, whence it is absorbed, thus conserving protein. The button, made and illustrated by the authors, has been adapted from older inventions of the same kind.

Chronic or Recurrent Diarrhœa.

MURRAY BAIRD (*The Canadian Medical Association Journal*, September, 1946) discusses chronic or recurrent diarrhœa and advises that in its investigation, an anatomical classification is of practical value. He thus refers to diarrhœa of gastric origin, of small-bowel origin and of large-bowel origin. He also refers specifically to the post-dysenteric syndrome, non-specific ulcerative colitis, amœbiasis, neoplasm of the colon, and diarrhœa due to nervous causes and to constitutional diseases. He advocates the consideration of various ætiological factors in chronic diarrhœa, of which the most important are infection, infestation, nutrition, allergy, neoplasm, nervous factors and constitutional disease. In such cases no examination is complete without inspection of the stools and sigmoidoscopy. The author issues a warning that in ex-service patients who have served in endemic areas amœbiasis is not uncommon, that its manifestations are often obscure, and that it is no longer a tropical disease.

Acute Suppurative Mediastinitis.

R. ADAMS (*The Journal of Thoracic Surgery*, October, 1946) has treated seven patients with acute suppurative mediastinitis by immediate gastrostomy, extrapleural mediastinotomy and massive chemotherapy and each patient has recovered. He points out that this disease, whether due to trauma or to perforation of the œsophagus, has in the past been attended by a high mortality rate, and sets out the principles and details necessary for prompt diagnosis and effective treatment.

Psychogenic Factors in Diabetes.

MAJOR B. R. GENDEL AND JULIEN E. BENJAMIN (*The New England Journal of Medicine*, April 25, 1946) record a study of forty-four diabetic patients admitted to an army general hospital, with a view to the determination of the influence of psychogenic factors in the ætiology of the disease. Reference to the literature reveals some difference of opinion on this matter and this prompted the study by the authors. They are of opinion that the incidence of diabetes is no more frequent in the army than it is in civilian life, and that this is significant, since a soldier's life involves every kind of psychogenic trauma including anxiety, insecurity and fear of death. In no case was it possible to prove a direct causal relation between the stress incident to military service and the subsequent development of permanent diabetes.

Electrocardiographic Changes During Upper Respiratory Tract Infection.

D. YOUNG (*American Heart Journal*, September, 1946) made electrocardiograms of thirteen persons suffering from mild, apparently benign upper respiratory tract infection, who showed no sign of cardiac affection, past or present. He found electrocardiographic abnormalities indicative of myocardial affection, which sometimes persisted for many weeks. Only five of the patients harboured streptococci in their throats. The author comments that "it is becoming increasingly apparent that transient or permanent cardiac involvement, as a result of a toxic state or direct bacterial or viral invasion, may be a concomitant of many infectious diseases". He also mentions that he is investigating the effects of sulphonamide administration on the electrocardiogram, in view of recent experimental and autopsy evidence that sulphonamide drugs may affect the heart.

Age and the Blood Pressure.

H. I. RUSSEK *et alii* (*American Heart Journal*, October, 1946) have made a statistical analysis of the blood pressure levels of 5,331 white male subjects between the ages of forty and ninety-five years. They conclude, *inter alia*, that the old saying, "100 *plus* the age", may be a fair index of the normal systolic blood pressure. They found that the tendency of the normal diastolic blood pressure is to fall rather than to rise with age, notwithstanding that many authorities have accepted small increments in the diastolic pressure with age as physiological; the normal diastolic pressure rarely exceeds 90 millimetres of mercury.

Angina Pectoris Treated with Thiouracil.

J. R. DI PALMA AND J. J. MA GOVERN (*American Heart Journal*, October, 1946), in view of the numerous reports published about ten years ago of the beneficial results to be obtained by total thyreoidectomy in *angina pectoris*, have administered thiouracil to eight patients with anginal pain without elevation of the blood pressure. In four of the patients the pain was beneficially affected and at certain times the exercise tolerance was doubled and even quadrupled; but three of these four had lost their increased ability to do work by the end of a year. The other four patients obtained no benefit from the treatment and two of them suffered from toxic skin eruptions. The authors point to the following disadvantages of thiouracil as a drug for use in the treatment of patients with normally functioning thyreoid glands: its toxicity, necessitating close supervision of the patient over long periods of time;

its inability to lower metabolism when the basal metabolism is already low; its tendency to produce water retention, which is particularly deleterious to persons with heart disease; and the necessity to keep up the treatment in order to maintain results.

Vivax Malaria.

I. M. LONDON, C. A. KANE, E. F. SCHROEDER AND H. MOST (*The New England Journal of Medicine*, September 19, 1946) discuss the delayed primary attack of vivax malaria in soldiers who had taken suppressive "Quinacrine" ("Atabrine") or quinine. They state that falciparum malaria is cured by suppressive doses of "Quinacrine" continued for three weeks or more, but that vivax malaria is not similarly curable. Delayed primary attacks of vivax malaria occurred from three to 104 days after cessation of suppressive "Quinacrine" therapy. The average time of onset was 41 days, but it might be a year after "Quinacrine" was suspended. The onset was sometimes classical, but often occurred with irregular fever and with abdominal pain and vomiting. A leucopenia was helpful in excluding other infections, except typhoid fever, dengue or influenza, and in excluding acute abdominal conditions. Frequently blood smears are "negative" for several days in delayed primary malaria, but the temptation to prescribe sulphonamides or penicillin must be resisted and a positive blood smear must be obtained before treatment begins. Treatment consisted of "Atabrine" 1·0 gramme the first day and 0·1 gramme thrice daily for six days. "Chloroquine" 0·8 gramme was given on the first day and 0·2 gramme daily for six days, then 1·0 gramme in one day and 0·8 gramme in seven days, 1·5 grammes in four days, 1·5 grammes in three days; quinine sulphate 29·0 grammes was given in fourteen days and quinine 29·0 grammes and "Plasmochin" 0·84 gramme in fourteen days. Most delayed primary attacks were clinically indistinguishable from relapses of vivax malaria.

Male Sex Hormone.

W. O. THOMPSON (*The Journal of the American Medical Association*, September 28, 1946), discusses the uses and abuses of the male sex hormone. Testosterone, usually the propionate, is the substance used in treatment. The seminiferous tubules of the testis produce spermatozoa, while the interstitial cells of Leydig in the testis produce male sex hormone. Testosterone is used in absence of the testes, in the treatment of intra-abdominal undescended testes where there is no response to chorionic gonadotropin, in Frölich's syndrome with bilateral intraabdominal cryptorchidism, in pituitary dwarfism, in the male climacteric, in impotence from glandular causes, in Cushing's syndrome, in Addison's disease, in hypopituitarism with secondary hypogonadism in old men. Twenty-five milligrammes of testosterone propionate given three times a week is the usual dose by intramuscular injection; thirty to sixty milligrammes of methyl testosterone daily may be given orally, or implantation of pellets may be used. Intramuscular injection is the routine method. Testosterone is contraindicated in sterility, in benign prostatic hypertrophy, in carcinoma of the prostate, in Frölich's syndrome with one or more testes in the scrotum, in undescended testes unless there is no response to chorionic gonadotropin, in impotence which is not of glandular origin, in old age with hypertension or arteriosclerosis. The value of testosterone is doubtful in *angina pectoris*, in female menstrual disorders, in carcinoma of ovaries or breasts. Male sex hormone is harmful in that it may injure the normal testis and cause azoospermia. Recovery from such injury usually follows cessation of treatment. It may cause pitting œdema of the legs, *acne vulgaris*, hypermetabolism, hypertrichosis, lowering of the pitch of the voice and enlargement of the clitoris in women. Male sex hormone causes retention of nitrogen, water and salt.

Dyspnœa and Diminished Vital Capacity Associated with Hay Fever.

E. A. BROWN *et alii* (*Diseases of the Chest*, May-June, 1946) who examined 42 patients frequently over a period of six to eight months, found that patients with uncomplicated hay fever due to supersensitivity to a pollen and with no history of bronchial asthma frequently exhibit diminished vital capacity during the seasons of the year when they are exposed to the pollen; also that patients with "coincidental inhalant sensitivities" show a greater variation in vital capacity from time to time than those sensitive to a single pollen. Intercurrent nasal infection also affects the vital capacity. Patients with bronchial asthma due to sensitivity to pollen, showed decreased vital capacity when exposed to their particular allergen, although asthma did not necessarily occur. The decrease in vital capacity was often associated with dyspnœa. The authors state that dyspnœa in patients suffering from "nasal pollenosis" may be regarded as the earliest sign that the bronchi are affected as well as the nose.

Tuberculosis.

C. LEVADITI (*La press médicale*, June 29, 1946) in discussing the calcifying action of vitamin *D* on experimental tuberculous lesions, states that Clement Simon reported the cure of tuberculous lupus by giving 15 milligrammes of vitamin *D* per week for three months. Levaditi had shown that "Sterogyll", a vitamin *D* preparation, hastened the calcification of tuberculous lesions in rabbits when injected into the testicle. Several authors have indicated a similar effect in human tuberculosis.

Herpes Simplex Encephalitis.

L. WHITMAN, M. J. WALL AND J. WARREN (*The Journal of the American Medical Association*, August 24, 1946) have reported two fatal cases of *herpes simplex* encephalitis. The virus of *herpes simplex* has been isolated from the spinal fluid of normal persons and from patients suffering from *encephalitis lethargica*, but doubt has always been thrown on these findings. However, recently there has been evidence that the virus of *herpes simplex* may produce primary encephalitis in man. In the two cases reported by the authors, young men, aged twenty-six and twenty-eight years, were affected. The onset was with headache, vomiting and mental confusion. Temperatures of 101° and 102° F. were noted and the spinal fluid contained 460 and 700 white blood cells per cubic centimetre. Hemiplegia developed in one case and convulsions in the other. Death resulted in both cases and autopsy revealed widespread invasion of the brain and meninges with lymphocytes and hæmorrhages characteristic of encephalitis. Solutions of brain and spinal cord were inoculated into mice and into guinea-pigs intracerebrally and intraperitoneally. Typical *herpes simplex* infection was produced in the animals inoculated and evidence was obtained that the two agents were identical with the virus of *herpes simplex*.

The Male Climacteric.

A. A. WERNER (*The Journal of the American Medical Association*, September 28, 1946) reports 273 patients treated for symptoms of the male climacteric. The symptoms described are nervousness or a feeling of tension, irritability, excitability, insomnia, numbness and tingling of the hands and feet, headaches, formication, mental slowness and defective memory, lack of concentration, depression, hot flushes, vertigo, tachycardia, cold hands and feet, chilly sensations, scotoma, lassitude and many other symptoms. Decreased libido and potency were present in 85% of the 273 cases. Testosterone propionate was injected every other day in a dose of 25 milligrammes and continued for some months. In most cases the symptoms are said to have been relieved by this treatment, but libido and potency were not usually affected. A guarded outlook should be maintained on the diagnosis and treatment of the male climacteric.

Spontaneous Pneumothorax.

S. COHEN AND J. M. KINSMAN (*The New England Journal of Medicine*, September 26, 1946) discuss non-traumatic spontaneous pneumothorax in military personnel. Forty-one soldiers were studied. Active pulmonary tuberculosis was noted in 5%, inactive tuberculosis in 7·6%, calcified primary infection in 10% and no parenchymal disease in 77%. The last-mentioned patients were usually healthy subjects and the onset of the disease was unrelated to physical effort. There was sudden chest pain in all but one patient, with cough in seven cases, cyanosis in three and fever in two. Treatment consisted of rest in bed, relief of cough and pain, aspiration of air from the pleural cavity in three cases to relieve dyspnœa, and oxygen inhalation in two. Rest in bed for some weeks was advised. Recurrence of pneumothorax occurred in 10% of these patients.

Neurosyphilis.

F. W. RENYOLDS, C. F. MOHR AND J. E. MOORE (*The Journal of the American Medical Association*, August 17, 1946) discuss penicillin in the treatment of neurosyphilis. Twenty-four patients with *dementia paralytica* were treated with penicillin alone. Febrile Herzheimer reactions up to 103·2° F. were noted in nineteen cases. About half of the patients showed improvement in the physical signs, weight and mental symptoms. The pleocytosis of the spinal fluid promptly disappeared in most cases. Between five and ten million units of penicillin were given to these patients. There was no apparent benefit from the larger doses. The more recent the onset of symptoms, the better was the response to treatment. When the Wassermann test was applied to the spinal fluid an improvement in the titre of the spinal fluid was noted in the case of all patients followed for one year or more. Seventeen patients were treated with penicillin *plus* induced tertian malaria. There was definite evidence of greater degrees of improvement in this series.

British Medical Association News.

THE OPHTHALMOLOGICAL SOCIETY OF AUSTRALIA (BRITISH MEDICAL ASSOCIATION).

ANNUAL MEETING.

THE sixth annual general and scientific meeting of the Ophthalmological Society of Australia (British Medical Association) was held at the Royal Australasian College of Surgeons, Spring Street, Melbourne, on October 23, 1946, Dr. J. Ringland Anderson, the President, in the chair. Those present included three members from Queensland, ten from New South Wales, thirty-one from Victoria, two from South Australia and two from Western Australia.

President's Address.

The President, Dr. J. Ringland Anderson, extended a welcome to such guests as had been able to attend, but particularly to Air-Commodore P. C. Livingston, C.B.E., A.F.C., F.R.C.S., R.A.F., who had flown from Singapore to attend the meeting. A tribute was paid to the Ophthalmological Society of the United Kingdom.

Dr. Anderson said that blindness was considered to be the common enemy. Various ways in which it was most frequently caused were dealt with as if blindness was an anthropomorphic enemy. These causes included congenital cataract, tumour formation and the effects of trauma. Defects in the defence against blindness were discussed. It was emphasized that it was necessary to see not simply the disease, but the individual as a whole, and him in his social and his cosmic setting, if a complete view of the patients' problems was to be obtained. The slow evolution of the spirit of medicine through the ages was briefly traced. It was suggested that bureaucratic control could unwittingly interfere with this spirit and blindness ensue.

The victims of blindness and their rehabilitation were considered. It was decided that many of them saw in life what many who were "sighted" failed to see. Reference was made to what was called real blindness and to the influence of atomic warfare.

Unveiling of Memorial to the Late Major Z. Schwartz.

A bronze tablet, in perpetuation of the memory of the late Dr. Z. Schwartz, who was killed in action on April 10, 1941, was unveiled. Dr. A. S. Anderson and Dr. T. a'B. Travers spoke with deep appreciation of the colleague the Society had lost and of his contribution to the establishment of the Medical Eye Service of Victoria. It is intended to hang the tablet in the premises of the Medical Eye Service.

The Relationship between Night Vision Testing and Night Vision Training in Aerial Warfare.

AIR-COMMODORE P. C. LIVINGSTON described the early experiments carried out by the Royal Air Force in night vision and its influence on flying. He traced the gradual development of the rotating hexagon and discussed its virtues and its limitations. The term "night visual capacity" was shown to be very useful. The factors which tended adversely to affect this capacity were considered. Particular attention was paid to anoxia. Its effects on the hexagon test and on the erratic involuntary ocular movements were shown by slides. The night vision screen test was described. Fields were shown to exhibit the results of anoxia, vitamin *A* deficiency, retrobulbar neuritis and diabetes. The probable trends of future development were discussed.

The Cure of Heterophoria in Air Crew: Its Clinical and Psychological Significance.

Air-Commodore Livingston described the changed outlook on the influence of heterophoria on flying. Reference was made to the origin of certain tests and to their usefulness. Their susceptibility to psychological and neuro-muscular influences was considered. The value of orthoptics both before flying training and as a means of rehabilitation was emphasized. Tribute was paid to the work of English orthoptists during the war. Patients with conditions of special interest were received and the results of their orthoptic training were described. Speculation was made regarding future developments.

The Role of Orthoptic Treatment.

MISS DIANA MANN (Melbourne) read a paper in which she attempted to show types of squint and other defects suitable for orthoptic training. Miss Mann assumed that treatment was not justified when results were slow or uncertain. She said that treatment was most useful for accommodative squints, certain occasional squints, and as an adjunct to operation on certain constant paralytic squints. It was also largely successful in curing symptoms of eyestrain which did not respond to correction of refractive error. In such cases lack of voluntary control of convergence was more significant than muscle imbalance. Success always depended on the patient's good mental and physical health and powers of concentration.

Concussion Glaucoma.

DR. ARTHUR D'OMBRAIN (Sydney) attempted to clarify the views expressed in an earlier paper upon traumatic glaucoma. He defined the nature of the lesion as a true chronic non-congestive glaucoma, and drew attention to the delay in the onset of symptoms, as this was evidence that no gross visual upset occurred at the time of injury. Three types of trauma occurred in these cases, namely, blows upon the eye, injury to the skull and heavy falls.

These injuries could be regarded as forms of concussion and Dr. D'Ombrain suggested that the resultant chronic glaucoma was one of the several possible results of concussion of the ocular bulb. He described additional case histories.

In conclusion, he advanced the hypothesis that these cases were indicative of a condition which might be named "concussion glaucoma", and that the mechanism of their production was that of a sclerosing lesion initiated by trauma, a fibrosis of the ciliary region or of the venous-capillary bed. This fibrosis was progressive and went on to the production of the ocular œdema known as glaucoma. Such an hypothesis explained the remoteness of the history of injury in many of the cases. The lesson was not too hastily to diagnose every case of chronic glaucoma in an eye as a bilateral disease, for it might turn out to be a monocular lesion secondary to a concussional trauma.

Retrobulbar Neuritis in Prisoners of War.

DR. S. R. GERTSMAN, as an ophthalmologist at 115th Australian General Hospital, Heidelberg, and at Stonnington Red Cross Rehabilitation Centre for Blinded Servicemen, had been associated with many cases of what was called retrobulbar neuritis due to avitaminosis. He described the results of examination and summarized the vision in all cases at both institutions. He discussed fundi, fields, treatment and prognosis. Dr. Gerstman gave details of rehabilitation and mentioned the percentage of disability and pensions. He also suggested possible liaison with St. Dunstan's of England.

DR. R. B. MAYNARD, who had been a prisoner in Changi camp, described the microscopic findings in the ocular tissues he had brought back. Unfortunately his difficulties in preserving the material were such that the detail was not very good. He considered that the changes were such as had been attributed to beri-beri.

Retrobulbar Neuritis and Deficiency Disease.

DR. CLIFFORD S. COLVIN (New South Wales) gave a short survey of men who had returned from imprisonment in the Halmaheras, Ambon and Borneo. These men were first seen at Morotai and others came from Changi and Kranji camps where Majors Claffy and Orr had looked after them. The men examined comprised English, Dutch, Australian and Indian troops and a few Dutch women.

Dr. Colvin suggested that possibly an unknown factor in addition to vitamin deficiency was to be looked for in this type of case. He considered its effects on other parts of the eye and ocular functions. Dr. Colvin said that one definite case of vitamin *A* deficiency was encountered responding well to treatment. Some men who lived under conditions similar to those of affected personnel showed no defects or symptoms, yet their diet must have been similar to that of those who did have symptoms. Men of all ages were affected by the disease and apparently age was not significant. Some men who said they had had blurred vision a year or two previously, when examined, had normal vision of $^6/_6$.

Dutch civilians, men and women, who had been examined, showed both normal and defective vision. The few children who had been examined showed no defective vision.

Men from Ambon, Dr. Colvin continued, who had no specialist treatment, included some who were affected mildly and severely and others who showed no effects at all. The rice ration in Ambon was about half that in Singapore. The incidence of defective vision seemed lower in men who had returned from Kuching in Borneo.

The general symptoms were usually numbness of the feet, feeling of pins and needles, aching in toes, feet and arches, with difficulty in walking. The back of the calf was

tender and knee joints were painful, and these symptoms were often associated with conjunctivitis and "glare", vision then became blurred, œdema of legs and body occurred later, and most patients described themselves as having "beri-beri".

Inherited Retinal Detachment.

DR. J. BRUCE HAMILTON (Hobart) presented a pedigree of inherited juvenile retinal detachment. He dealt with a total of ten patients of the pedigree with twenty eyes. Six patients with a total of ten eyes had been refracted and the whole were hypermetropic. Of the total ten patients examined, five had retinal detachment involving seven eyes. Of these seven eyes, three had pseudoglioma, one *retinitis proliferans*, and one a detachment which reattached itself. A further two of the ten patients examined had unilateral complicated cataracts, and loss of projection with undoubted detachments behind them. Dr. Hamilton said it was therefore safe to presume that in the pedigree seven patients and nine eyes were involved with detachments. Of the remaining eleven eyes, one had a retinal cyst with peripheral chorioido-retinitis, and three eyes had peripheral chorioido-retinitis without retinal cysts. One eye of the twenty examined had aniridia.

Dr. Hamilton then discussed the inheritance of polycystic disease of the kidneys, liver and pancreas, and the inheritance of congenital cystic disease of the lungs. He was able to show a film of one patient from his pedigree with a retinal detachment in both eyes and pseudoglioma who had congenital cystic disease of the lungs in an advanced state. He asked whether members of the Society would enlighten him as to the relationship between congenital cystic disease of the lungs and inherited juvenile retinal detachment. He felt that they were both due to generalized congenital cystic disease involving the eyes and the lungs for at least two reasons: (*a*) that the retinal cysts became infected and appeared as pseudoglioma, just as the lung cysts became infected and bronchiectasis ensued, and (*b*) the fact that, like lung cysts, retinal cysts ruptured and the detachments reattached themselves.

Angioid Streaks of the Retina.

DR. J. D. MAUDE (Sydney) gave a description of cases of angioid streaks of the retina with *pseudoxanthoma elasticum*. Dr. Maude also gave a short review of contributed cases by other members, and discused the literature.

Pigmentary Abnormality in Children Congenitally Deaf following Maternal German Measles.

DR. E. O. MARKS (Brisbane) said that though the incidence of congenital cataract did not rise in Brisbane as in Sydney, Melbourne and Adelaide, there were serious "epidemics" of deafness and cardiac defects. Half the deaf children born in the years 1937, 1938 and 1941, however, showed retinal pigmentation, while those born in other years were normal. The appearance resembled a typical form of *retinitis pigmentosa*.

Intracapsular Cataract Extraction: Its Most Serious Complication.

DR. F. GREGORY ROBERTS (Sydney) said that the condition described consisted of a progressive retraction upwards of the iris following a technically perfect operation. It was not connected with the loss of vitreous at the operation or with any subsequent burst through of vitreous. The type of patient in which the condition occurred was described and treatment suggested.

The Future of Ophthalmology.

DR. K. O'DAY (Melbourne) said that because of lack of teaching of the subject, ophthalmology in Australia had always rested on a very insecure foundation. Examinations held in the past had not been very satisfactory, and the facilities for training provided were quite inadequate. Histology should be made a living subject, and a library of slides for the teaching of histology and embryology should be available. Physiology should provide a sound introduction to clinical ophthalmology. The clinical aspect of the subject should be taught from the patient and not from a book. It must of course rest on a sound basis of pathology. The opportunities available had been neglected in the past. Without a sound basis of pathology, no progress could be made. Adequate direction was essential, said Dr. O'Day, and this could be provided for by a chair of ophthalmology at the University.

Clinical Meeting.

A clinical meeting was held on Saturday morning, October 26. A series of very interesting cases were demonstrated. Dr. Kevin O'Day demonstrated the rapid method of celloidin embedding and a large number of slides of ocular tissues of Australian animals. Dr. Ringland Anderson demonstrated the projection and the polaroid methods of investigating diplopia. He emphasized the value of "dividing" diplopia into a component for each eye, and he described the association of palsies of one superior muscle of each eye, of one inferior muscle of each eye and of both superior oblique muscles.

Annual Dinner.

The annual dinner was held at Menzies Hotel, and was attended by 45 members and the following guests: Air-Commodore P. C. Livingston, R.A.F., Professor P. MacCallum, Professor Sydney Rubbo, Air-Commodore E. A. Daley.

The President announced that Air-Commodore Livingston had accepted honorary membership of the Society. The announcement was received with applause.

The President offered the congratulations of the Society to Dr. N. McA. Gregg, who had received the Shorney Prize, at its first award, for his work upon "Congenital Cataract Associated with Maternal Rubella".

Annual General Meeting.

The annual general meeting dealt with general business. Particular attention was given to special problems, including ophthalmic education and the future of ophthalmology.

Dr. Darcy A. Williams (New South Wales) was elected president for the ensuing year.

It is proposed to hold the seventh annual general and scientific meeting at Sydney in the week September 1 to 6, 1947.

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioners have been released from full-time duty with His Majesty's Forces and have resumed civil practice as from the date mentioned:

Dr. H. D. Raffan, B.M.A. House, 135, Macquarie Street, Sydney (February 10, 1947).

Dr. Norman Barr, 30, Addison Avenue, Roseville, and Warringah Road, French's Forest (February 1, 1947).

Correspondence.

AN OBSERVATION ON ECLAMPSIA.

SIR: This letter has no conclusions. As the name implies, it is an observation and nothing more, but it may be worth printing as a statement of facts from which someone else may work. I am now working in another part of the Pacific and cannot follow up the investigations I had begun.

During some five years' association with the obstetric department of the Colonial War Memorial Hospital in Suva, Fiji Islands, there were 2,035 deliveries. The great majority of these mothers were Fijians or Indians, but there was a small number of part-European mothers. Eclampsia was very common amongst the Indian patients, but I cannot recall a case amongst the Fijians. Eclampsia occurred amongst the part-Europeans. Unfortunately, I have no means of finding out the exact number of cases of eclampsia and toxæmia out of the total cases involved.

In attempting to find out why eclampsia and toxæmia occurred commonly amongst Indian women and rarely if at all amongst Fijian women, we examined fifty consecutive Indian admissions and the same number of Fijian admissions. Each patient was carefully questioned as to the diet for six months before admission and the details of the diet were recorded. It must be noted that these diets are imperfectly set down, as it was almost impossible to find out the exact amounts of the various constituents of the diet.

Of the 50 Indian mothers, six showed all the signs of toxæmia of pregnancy and one was a severe eclamptic. One other case had an accidental hæmorrhage. A further nine cases had œdema and headache and other symptoms and signs, but may not have been true toxæmias. Of the 50 Fijian cases, two showed a trace of albumin, but no further signs of toxæmia.

There is no space to record the details of the 100 diets involved, but herewith is the list of foods of H.R., an Indian woman who was a very severe case of eclampsia.

It is representative when compared with the diets of the other Indian women. *Fruits*: bananas, apples, pineapples, pawpaw, water-melon, oranges, mangoes. *Vegetables*: bean, cabbage, cucumber, potato, dhal, kumala, dalo, tapioca, corn, egg-plant, tomato, radish, pumpkin. (These were all curried.) *Meat*: fowl, goat, mutton (tinned or fresh), mostly curried; fish (fresh or tinned). *Drinks*: milk, water, lemonade, tea. *Sweets*: mostly Indian-made sweets, occasionally sweets available in the stores. *Bread et cetera*: bread very seldom; rice, roti, cakes frequently.

This appears to be a fairly adequate diet, but note that practically all the Indian women took their meat and vegetables curried and with chillies and spices.

For comparison we print also a Fijian diet taken at random from the 50 Fijian cases, but once again fairly representative of the average diet recorded. *Fruits*: bananas, pineapple, pawpaw, orange, lemon, melon; fruit taken infrequently. *Vegetables*: dalo leaves, bele, cabbage, onion, carrot, bean, dalo, kumala, kassava, bread-fruit, yam. *Meat*: fresh or tinned meat two or three time a week; fish about twice a week; eggs rarely. *Drinks*: milk only with tea, water, tea, lemon drinks. *Bread et cetera*: roti, bread.

Without going into details as to the quantity of food taken each day, there does not seem to be any marked difference between the two groups of diets except in one particular. Practically all the Indians ate their meat and vegetables curried, while only one Fijian took curry and that infrequently.

It is, of course, quite likely that diet has nothing to do with the occurrence of toxæmias and eclampsia. The point, however, which I am trying to make is, that if diet is a factor, the use of curry and highly spiced food might be worth studying further. As I am unable to follow up this line of inquiry, I would be pleased to forward such data as I have to anyone interested in the question raised. My thanks are due to the Director of Medical Services, Fiji, for permission to publish this letter.

Yours, etc.,
GEORGE R. HEMMING,
Medical Officer, Hospital of the Epiphany.

Fanabu,
Malaita,
British Solomon Islands.
December 26, 1946.

AUSTRALIAN MEDICAL OFFICERS FOR THE ARMY OF OCCUPATION IN JAPAN.

SIR: On September 13, 1946, I wrote to Sir Henry Newland, President of the Federal Council of the British Medical Association, stressing the difficulty I was finding in obtaining young medical officers for the Australian Component of the British Commonwealth Occupation Force in Japan. Following upon this I understand the Federal Council issued a statement to the Branch councils asking them to do what they could to bring the matter to the notice of their members. In addition, I have personally asked senior men in the capital cities to bring the urgency of our requirements before the young graduates with whom they come in contact.

Unhappily, these measures have not been productive of satisfactory results, and I can only assume that the importance and urgency of the situation is not understood by the young men recently admitted to the profession, as I feel certain that these young graduates are imbued by the same high sense of patriotism and duty that has always characterized our profession.

It is of vital importance to the British Empire that its interests should be strongly represented in the reconstruction of Japan, and for this reason the governments of the United Kingdom and the Dominions decided to undertake a large share in the responsibility of the occupation of that country and to maintain in Japan, for such time as is considered necessary, a force which is commensurate with the part the British Commonwealth played in the victory over the Japanese.

This force consists of components from the United Kingdom, Australia, New Zealand and India. The Australian Component has a strength of approximately 10,000, and in order that their health shall be safeguarded and that they may have access to the standard of medical treatment to which they are entitled, it is necessary to provide a medical service which must include approximately thirty medical officers.

This figure may seem high, but in order to appreciate the necessity for this number of medical men, several factors must be taken into consideration.

1. Under direction of the supreme commander the force must be prepared to undertake an operational role at any time if required.
2. The area occupied by the force is roughly 400 miles by 300 miles.
3. The terrain is rugged and mountainous. There are no roads fit for transport and air communication is difficult during the greater part of the year, so that the only possible communication between dispersed centres in this area is by railway.
4. Japan is a country which is notorious for its epidemics and disasters.
5. Hospitalization must be provided at a scale that will ensure that our troops are cared for in accordance with modern standards.
6. There is no organized public health system in Japan at the present time and medical officers of the force have considerably increased responsibility in this respect, both in regard to the troops under their care and the civil population in the area which they occupy.
7. In addition to the above military commitments, the medical services of the British Commonwealth Occupation Forces are responsible for the medical care of all British civilians in Japan and their families. This is a large and continually increasing commitment.

The junior medical officers at present serving in Japan are due for release within the next few months. They are young graduates who were released to the services shortly before the war terminated. All of them would have been demobilized during 1946 under ordinary circumstances, but they considered it to be their duty to volunteer for a period of service in Japan. The Government promised that they would be released as soon as possible after a period of twelve months' service in Japan, but under no circumstances would they be retained longer than eighteen months. This promise must be honoured, and if volunteers are not forthcoming to relieve them the Australian troops in Japan will be without a medical service. It is unthinkable that our profession should become responsible for a situation which might, quite possibly, necessitate the withdrawal of our forces from Japan and do a great deal towards nullifying all the sacrifices made by the men who have served their country and the Empire so well in the past most critical years of its existence.

In order that the position may be fully appreciated, twelve medical officers complete eighteen months' duty in Japan in June, 1947, four in July, four in August, two in September and one in December.

As a result of my visit of inspection to Japan towards the end of last year, I have no hesitation in saying that the experience to be gained, both clinical and general, by twelve months' service with the British Commonwealth Occupation Forces will be of the utmost value to any young medical practitioner in his future life.

In addition to the junior medical officers, we also require urgently the following specialists: Physician (O.C. Medical Division—Lieutenant-Colonel); venereologist (Major); radiologist (Major); anæsthetist (Major).

I should be glad if you would give this letter what prominence you can in an early number of the journal, as I feel confident that the situation has only to be realized by the profession to ensure that our requirements will be met.

The present urgent requirements and conditions of service are attached. Any further information required may be obtained by application to this Directorate.

Application for enlistment may be made to the Deputy-Director of Medical Services at the military headquarters of the State in which the applicant resides or direct to this headquarter.

Yours etc.,
S. ROY BURSTON,
Major-General,
Director-General of Army Medical Services.

AUSTRALIAN MILITARY FORCES.

Rates of Pay and Allowances for Officers (Male).

Items. (*per diem*).	Ranks (unmarried or without dependants). Captain.	Major.	Lieut.-Colonel.	Remarks.
Pay	£1 4 0	£1 11 6	£1 19 0	Not subject to taxation whilst serving overseas.
Field Allowance or Subsistence	3 0	3 0	3 0	
Deferred Pay .	1 0	1 0	1 0	
Total	£1 8 0	£1 15 6	£2 3 0	

Clothing, quarters, rations, medical and dental attendance are provided free. Outfit allowance of £26 on appointment and £6 per year maintenance.

Dependants' Allowance when Applicable.

	Per Diem.	
One dependant	4s. 6d.	
Two dependants	7s. 6d.	
Three dependants	9s. 6d.	
More than three dependants	9s. 6d.	(*plus* 1s. 6d. for each dependant in excess of three).

Conditions of Service.

Medical officers may be enlisted under the following conditions: (1) Senior specialists not less than six months in Japan. (2) Administrative and general duty officers not less than twelve months in Japan.

THE ZOOLOGICAL POSITION OF MAN.

SIR: Dr. Guy Griffiths quotes Plato (428-348 B.C.) telling of Socrates' (468-399 B.C.) asking "Is it the brain which gives the senses of hearing and sight and smell" *et cetera*? May one quote an earlier Greek writer on the subject, namely, Epicharmus, the "Father of Comedy" (*circa* 530-440 B.C.), who, disagreeing with Xenophanes in the latter's description of the "One God"—*οὖλος ὁρᾷ, οὖλος δὲ νοεῖ, οὖλος δέ τ' ἀκούει* ("All eye is He, all thought, all ear")—answered in these words: *νόος ὁρῇ καὶ νόος ἀκούει τἆλλα κωφὰ καὶ τυφλά* ("It is mind that sees, mind that hears; the rest [the senses] are deaf and blind").

Four great thinkers are (in one way or another) associated with the comedy writer and philosopher Epicharmus, namely, Pythagoras, Xenophanes, Plato and Heraclitus, whose dictum is still of interest: "Eyes and ears are bad witnesses."

Yours, etc.,

"Lakemba Cottage", KEVIN BYRNE.
Lakemba,
New South Wales.
January 24, 1947.

SIR: I am amazed that a man of Dr. Abbie's standing should react so unscientifically to my criticism, even if it were mainly destructive. His concluding remark, which amounted to a charge of dishonesty, and his suggestion that my reading was confined to parts of a single book, are not, to use his own phrase, "reminiscent of the ancient polemics" of a century ago. In those days debaters as a rule kept their tempers.

His remark about the "anti-evolutionists of nearly a century ago" might suggest to the casual reader that anti-evolutionism is extinct in scientific circles. This is far from being the case, as anyone who has read Volumes IV and V of the *Encyclopédie française* (1938) is well aware. The anti-evolutionist trend of French thought has been disturbing J. S. Huxley, as is clear from his review of French work in biology from 1940 to 1945, published in *Nature* of May 11, 1946 (pp. 611-614).

Dr. Abbie has two complaints about my methods of attack: 1. I have quoted individual authors irrespective of other evidence. 2. I have dragged sentences from their context. With regard to the first complaint, I was writing a letter, not a book, and could not be expected to discuss each point in full; on points that could be settled only by expert knowledge, a single quotation from a recognized authority is as much as the demands of brevity would admit. With regard to the other complaint, Dr. Abbie does not provide any specific instance in which I have dragged a sentence from its context. Until he does so I am entitled to ignore this charge.

In his "detailed reply" Dr. Abbie has proved himself a master at missing the point, so that he leaves my criticism of Dr. Burkitt's paper substantially unanswered. Taking the points in order I submit:

1. To clear the title of the charge of being misleading, he has to alter it by adding the qualification, "for the purpose of the argument". I suggest that the title should have been "The Evolution of the Human Type and its bearing on Physical Anthropology."

2. Dr. Abbie made no attempt to rebut my arguments which established that Huxley's book is not a masterly synthesis. He seems not to have read the book, for he describes it as "probably the most comprehensive modern presentation on human evolution", whereas Huxley devotes barely 100 of his 580 pages to the subject of human evolution. Broom, Hooton, Keith and others have much more to say on the subject than Huxley in this book.

3. Dr. Abbie does not meet my contention that Dobzhansky's definition of the species in terms of genes violates the canons of scientific method.

4. Dr. Abbie has failed to clear Dr. Burkitt of my charge that he contradicted himself in denying that different species are fertile *inter se*, declaring Neanderthal man and *Homo sapiens* to be different species, and then admitting that the Neanderthal and sapiens types could interbreed. Since Dr. Burkitt gives these conflicting views as his own, it is futile for Dr. Abbie to blame Weidenreich for the confusion.

5. The books referred to by Dr. Burkitt may set out the evidence that man has at such and such a time possessed the power of speech and conceptual thought; they cannot bring forward any evidence bearing on the process by which man acquired these powers, for the very simple reason that there is none.

6. Dr. Abbie concedes my point that "the progressive enlargement of the brain" referred to by Dr. Burkitt is not a fact if we are to judge, as scientifically we must, from the Neanderthal specimens that have been preserved.

7. In stating that "variability through isolation of sub-specific groups is a well-known and often observed fact", Dr. Abbie seems to think he is contradicting Goldschmidt. What Goldschmidt says is that while such variation occurs, it is not sufficient to give rise to a new good species.

8. Whereas Dr. Burkitt affirmed that Dryopithecus is one of man's anthropoid ancestors, Dr. Abbie now admits that he may not be on the direct line.

9. To refute my contention about the classical theory of the gene, Dr. Abbie offers an illustration from chemistry. He does not seem to have realized that the gene is a hypothetical entity postulated to account for a difference in one character between two organisms otherwise identical in all respects. According to the classical theory of Morgan and others, the organism is simply an aggregate of unit-characters, each of which is determined by a gene. Nowadays geneticists insist that the genic complex is more important than the genes considered individually, and point out that a single character may be determined by many genes. Thus J. S. Huxley writes: "Every character, e.g. 'rose-comb', is dependent on a large number (possibly all) of the genes in the hereditary constitution." ("Evolution the Modern Synthesis", page 19.) The classical theory of the gene has been abandoned.

10. Huxley wrote: "A brain capable of conceptual thought could not have been developed elsewhere than in a human body." Yet Dr. Abbie declares that Huxley "probably does not pretend to an exhaustive knowledge of the possibilities of organic life". It is obvious, I think, that unless Huxley claims to know all the possibilities, his statement cannot stand.

To attribute conceptual thought to the brain or any other organ is part of the philosophical theory known as materialism; as I have not the space to refute materialism, I can only reiterate that the great majority of philosophers reject materialism, adding that philosophical arguments that were valid in 300 B.C. are no less valid in A.D. 1947.

11. I did not deny that intrauterine competition is a fact; what I disputed was Huxley's inference that such competition "puts a premium on speed of development", asking whether human twins have a shorter period of gestation than single embryos. Dr. Abbie does not defend Huxley's inference.

12. What I call "a priori speculation", Dr. Abbie calls "evidence". I leave it to the reader who is acquainted with the arboreal theory to decide which term provides a better description for the arguments brought forward to support this theory.

13. Dr. Abbie has failed to see the point that it is idle to say that we should study the genes rather than physical measurements, when all the knowledge we can have of the genes must be expressed in terms of the measurements.

14. The major workers in biological statistics, for example, Fisher, Haldane, Wright, do require Goldschmidt's reminder that their biology must be sound, for they exaggerate the importance of mathematics for biology, working out elaborate equations with factors which stand for entities that are really incalculable, such as selection pressure. This aspect of the matter is ably dealt with by Robson and Richards in their book "The Variation of Animals in Nature" (1936).

15. My reference to the donkey was necessary to refute the suggestion of Huxley that the fact that man is continuously sexed has something to do with "a gradual development of freedom from rigidly determined mechanisms and instincts such as we see in the lower animals". The simple fact that the donkey is continuously sexed is enough to knock the bottom out of Huxley's hypothesis.

16. Some would translate "the scientific outlook" that leads a man to refuse to accept the evidence for extra-sensory perception as "mechanistic prejudice".

Dr. Abbie's statement that the subject of human evolution is slowly piecing together a solution, exhibits a looseness of

expression only too frequent in modern scientific work. In the past two years I have read more than thirty works on various aspects of the problem of evolution and the conclusion I have come to is that the most pressing need of speculative biology is destructive criticism. The amount of rubbish to be cleared away is immense.

Yours etc.,

Undated. "CRITICUS".

THE TREATMENT OF THYREOTOXICOSIS BY CONCURRENT ADMINISTRATION OF THIOURACIL AND IODINE.

SIR: In the issue of THE MEDICAL JOURNAL OF AUSTRALIA of January 11, 1947, Dr. Ivan Maxwell replies to a criticism made by one of us (H.P.) of the article by himself, Gunter and Schwartz published on December 7, 1946, but as the major part of his comments concern the article "'Thio' Drugs in Thyreotoxicosis" by Poate and Spencer published in THE MEDICAL JOURNAL OF AUSTRALIA, April 13, 1946, this reply is by the two of us. Our chief concern was to find out whether the "thio" compounds were of any value in obtaining a remission in cases of acute primary thyreotoxicosis until such time as a normal hormone balance could be established and to determine how this could be brought about. As yet the principal ætiological factor in thyreotoxicosis is not understood. Until this is known, one can only surmise as to the real action of the "thio" compounds in this disease. It seems that they act by preventing the union of tyrosine and iodine to form diiodotyrosine and that they have some capacity to fix or bind iodine and so interfere with the production of thyroxine. Experimental work is reported with radio-active iodine as a tracer substance and this shows a marked inability of the thiouracil treated gland to utilize iodine, most of which is excreted in the urine. All observers report that patients treated with iodine show a lag in their response to thiouracil. It is for these reasons that we consider the coincident administration of iodine and thiouracil to be contraindicated and we feel that the results published by Maxwell, Gunter and Schwartz give strong support to our views. The criticism of our article of April 13, 1946, is rather belated and has been stimulated by the two articles published by Poate on December 8, 1946. The fact that we are both surgeons impels us to look for concrete and tangible results without delving too far into the problematical and theoretical aspects, although these are very interesting. In June, 1946, Mr. Poate had the honour of an invitation by the Royal Australasian College of Physicians to address their members on "Some Aspects of Thiouracil Therapy for Thyreotoxicosis", and this address will shortly be published in the *Proceedings* of that college. Although many interstate visitors were present, there was very little discussion although it had been hoped this would have provided a suitable opportunity for an exchange of ideas.

We may now turn to the several points raised by Dr. Maxwell, dealing with each as he has listed them.

Paragraph 1: The extract he makes from Mr. Poate's article of December 7, 1946, is not quite correct, as the paragraph from which he quotes is headed "The Thio Compounds" and the words used were "improved forms of the drug" and not "improved forms of this drug (thiouracil)"—a small point, but as many varieties of thio compounds are undergoing clinical trial it is not without significance. Reference is made to "17 illustrative cases", whereas our heading was "Reports of Cases", which were selected not so much as examples of the usual reactions to thio-therapy, but to illustrate mainly the unusual, such as febrile reactions (Cases V, IX and XVII), our one case of agranulocytosis (Number XIV), myxœdema following prolonged therapy (Number VIII), operation for cosmetic purposes after good result with thiourea elsewhere (Number X), one case resistant to iodine and deep X-ray, but prepared for operation with thiourea (Number XI), one who had 16 years continuously on iodine (Number XIII), one extraordinarily sick woman eventually made safe for operation (Number XV) and even those with good results were selected as indicating some unusual or prolonged time for treatment (Numbers III, XII). We thought that anyone reading the context of the article and then the reports of these cases would have been able to comprehend that these were not the normal reactions in this therapy, but apparently we were in error either in making such an assumption or in not making it clear that these were unusual cases. Dr. Maxwell assumes without any adequate reason that these seventeen cases are classed by us as good results, whereas only five were so graded and the other twelve are put in with three other cases as unsatisfactory, that is, fifteen in a total of seventy-five treated and reported on. He mentions four cases with basal metabolic rates well over a 10% level, which we regard as evidence of thyreotoxicosis, and unwisely juggles with percentages, referring to these as 50% failures. Let us consider briefly each of these cases as listed in their order in our Table I.

Case II, +18%.—Although our footnote explains she had a cold when the test was done, he overlooks this fact and that when examined five months later she was normal (and has remained so since then).

Case VII, +14%.—Was very obviously one of the unsatisfactory cases and eventually came to operation which was mentioned as a probability.

Case XIV, +17%.—Was the one who had agranulocytosis and was operated on as was fully detailed in the report of her case.

Case XV, +13%.—Was the desperately ill woman also classed as unsatisfactory, but was eventually brought to operation.

Bearing these facts in mind, Dr. Maxwell's summing up is unwarranted and grossly misleading to those who may not have read the article in question. The remarks to which we take such exception are: "Now these are cases from the groups which Mr. Poate states are amenable to 'thio' treatment. It is logical to assume that if Mr. Poate has so overstated the therapeutic value of 'thio' drugs in this paper, it is probable that his present report which is unsupported by illustrative cases is equally misleading . . . It is curious that Mr. Poate did not observe that the detailed figures failed to support his general optimistic conclusions."

The only saving grace is the "if" in the second sentence, for the first sentence is not factual and the last sentence is a peculiar anomaly. In the exhilaration of quixotically tilting at statistical windmills of his own construction he has failed to correlate the seventeen case histories with the context of the article. Another piece of disordered reasoning is in his paragraph 7, when he states that there were "five examples of toxic reactions to 'thio' drugs (including one example of agranulocytosis) in their seventeen illustrative cases"—the erroneous inference to be drawn from such a statement is obvious and wholly unjustified.

Paragraph 2.—*Thyroideum Siccum* is seldom to be used in the manner indicated by Dr. Maxwell unless, as occasionally happens during maintenance therapy, some degree of myxœdema develops and it is used for a few weeks along with reduced dosage of thiouracil until normality is reached. We thought from the literature that there was general agreement in the use of *Thyroideum Siccum* in controllable doses to counterbalance the thyreotropic hormone which is responsible for the thyreoid hyperplasia and the exophthalmos. In our hands the practical clinical results have been remarkable in the suitable early cases of acute Graves's disease.

Paragraph 3.—At the time of writing the latest issue in Sydney libraries of *The Journal of Clinical Endocrinology* is that of September, 1946. The only relevant article appearing recently is one by R. H. Williams in January, 1946, in which he reports on 247 patients treated with thiouracil. The following extracts seem relevant: "Desiccated thyroid was given to decrease the orbital changes or decrease the size of the goitre in 31 cases". "Patients treated with iodine before thiouracil therapy tended to respond more slowly than ones treated only with thiouracil." "Iodide was given during part or all of the period of thiouracil therapy in 29% of cases, most of whom were subjected to thyroidectomy." "Of 100 patients who had been treated with thiouracil, 49 have gone for intervals of 3 to 21 months free of symptoms. In 51 there was relapse of thyreotoxicosis and of these 66% occurred within one month of ceasing treatment. . . . Patients treated for 9 months or longer showed a better sustained response than ones treated for shorter intervals."

It is to be noted that no mention is made of any of these cases having received iodide and we believe that the reason for relapse in 51 of this 100 series is because of an inadequate period of maintenance dosage.

Dr. Williams also states in referring to the 121 patients operated on that "in the majority of patients treated with iodine this drug was given during the last few weeks of thiouracil therapy. The histological appearance of the gland was as satisfactory in this group as in any of the others including the ones receiving iodide before and during thiouracil therapy."

It is to be noted that adenomata were reported in 35 of the 121 cases operated on.

Far from being antagonistic to our own views, we feel that with Dr. Williams, who is of international repute, we are on common ground in our reasoning and in our findings.

Paragraph 4.—As already noted, only 6 of their 35 cases were treated as ambulatory, whereas now we treat as such all but those very seriously ill or with cardiac breakdown and these need as a rule only two to four weeks in hospital.

Paragraph 5.—Regarding the time necessary to prepare patients for operation, this was not stated definitely by Maxwell, Gunter and Schwartz and their Figure IV is difficult to work out exactly, but it appeared that some 29 cases had a basal metabolic rate of zero or *minus* after three weeks' treatment, whereas some 13 were between +10% and +20% and some 8 were still as high as +50%. As 19 patients were subjected to operation within the "15 to 20 days" necessary for preparation, they must have all been among those who reacted adequately to the combined therapy.

Paragraph 6.—The error regarding the iodine content of the circulating blood and the omission of "per 100 cubic centimetres" is obvious and its correction is acknowledged.

Paragraph 7.—In every article written by either of us the fact that the use of thio compounds is potentially dangerous has been emphasized much more forcibly than is implied by Maxwell and his associates in their somewhat colourless conclusion that the method "is not without risk", and the reference to the seventeen illustrative cases has been dealt with under paragraph 1.

Paragraph 8.—The percentage selected for medical treatment of all cases of toxic goitre (the term thyreotoxicosis is preferable) coming under the care of Mr. Poate is slightly under 50%, that is, all cases of acute hyperplastic goitre, all cases of the "*forme fruste*", most cases recurring after previous operation or irradiation and those nodular goitres refusing operation or unfit for it by reason of age, lowered liver function or other illness or disease. The balance represents secondary types of thyreotoxicosis, and all of these are referred for operation as mentioned in the letter published January 4, 1947 (by H.P.).

Paragraph 9.— In view of the published results of workers in Britain and America, as well as our own improved and improving results, there should be no fear that the carefully considered reports of either or both of us may increase one of the "Vulgar Errors in Regard to Goitre", nor will the community be likely to suffer any detriment; on the other hand we feel that the more we can interest practitioners along the right lines, the greater the benefit to the community.

Leys (*The Lancet*, Volume I, 1945, page 461) and Andrew Wilson (*The Lancet*, May 4, 1946, page 640) both refer to "a tendency to over emphasize the toxicity of anti-thyroid substances in a manner similar to that which attended the introduction of the sulphonamides". There is no doubt that thiourea was more toxic than thiouracil and in our hands methyl-thiouracil is the least toxic, but nevertheless, efficient laboratory and clinical control of patients under treatment is essential if toxic effects are to be avoided.

In conclusion, we must apologize for the length of this communication, but such important principles were involved that full comment and correction of false deductions was imperative.

Yours etc.,
HUGH R. G. POATE.
S. L. SPENCER.

225 Macquarie Street,
Sydney,
January 20, 1947.

INTERNATIONAL CONGRESS OF PÆDIATRICS.

Sir: Advice has been received from Dr. L. Emmett Holt, junior, of 167th Street and Broadway, New York 32 N.Y., that the Fifth International Congress of Pediatrics is to be held in New York City on July 14 to 17, 1947.

This congress will be a gathering of pædiatricians from all countries of the world and will serve to bring physicians in this specialty abreast of the latest advances in medical science.

As it is the first congress of this kind to be held after the war, it has an important function to perform in making medicine once more a truly international subject.

It would be appreciated if any pædiatricians wish to attend this congress they would inform me so that any departmental assistance that can be made available can be given to them.

Yours etc.,
A. J. METCALFE,
Acting Director-General of Health.

Department of Health,
Canberra, A.C.T.,
February 7, 1947.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

COURSE AT ARMIDALE.

THE Post-Graduate Committee in Medicine in the University of Sydney, in conjunction with the Northern District Medical Association, will hold a week-end course at Armidale on Saturday, March 8, and Sunday, March 9, 1947. The course will be held at the New England University College, Armidale. The programme is as follows.

Saturday, March 8.

2 p.m.—"Cause of Stillbirths and Neonatal Deaths", Dr. Mary J. Heseltine.
3 p.m.—"The Medical Treatment of Hyperthyreoidism", Dr. J. Kempson Maddox.
4.30 p.m.—"The Surgery of the Gall-Bladder", Dr. V. M. Coppleson.
8 p.m.—Film programme.

Sunday, March 9.

9.30 a.m.—"The Bacteriology and Pathology of Puerperal and Post-Abortional Sepsis", Dr. Mary J. Heseltine.
11 a.m.—"Twenty-Five Years of Insulin", Dr. J. Kempson Maddox.
12 noon.—"Varicose Veins", Dr. V. M. Coppleson.
2 p.m.—"The Practical Importance of the Rh Factor", Dr. Mary J. Heseltine.
3 p.m.—"The Use of Anticoagulants", Dr. J. Kempson Maddox.

Enrolment.

The fee for the course will be £1 1s. There will be no charge for members of the defence forces. Those wishing to attend are requested to notify Dr. R. J. Jackson, Honorary Secretary, Northern District Medical Association, Armidale, as soon as possible.

THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

COURSE FOR M.D. PART II AND M.R.A.C.P., 1947.

THE Melbourne Permanent Post-Graduate Committee in Medicine announces the details of the 1947 course for the M.D. Part II and M.R.A.C.P. The demonstrations will be held on Thursdays and the particulars are as follows.

March 6, at the Royal Melbourne Hospital: "The Application of Physiological Principles to Clinical Medicine: Dyspnœa", by Professor R. D. Wright.
March 13, at the Royal Melbourne Hospital: "The Application of Physiological Principles to Clinical Medicine: Cyanosis", Professor R. D. Wright.
March 20, at the Royal Melbourne Hospital: "Diagnosis of Cardiac Pain", Dr. C. H. Fitts.
March 27, at the Royal Melbourne Hospital: "Principles of Prognosis in Heart Disease", Dr. C. H. Fitts.
April 3, at Saint Vincent's Hospital: "Management of the Anæmias", Dr. T. E. Lowe.
April 10, at the Alfred Hospital: "Chronic Bronchitis and its Sequelæ", Dr. W. S. Newton.
April 17, at the Alfred Hospital: "The Place of Surgery in Pulmonary Disease", Dr. W. S. Newton.
April 24 and May 1, at the Royal Melbourne Hospital: "Jaundice", Dr. L. Hurley.
May 8 and 15, at the Royal Melbourne Hospital: "Thyreoid Disorders", Dr. I. Maxwell.
May 22 and 29, at the Alfred Hospital: "Nephritis", Dr. M. C. Davis.
June 5, at the Alfred Hospital: "Peripheral Vascular Disease", Dr. E. Downie.
June 12, at Saint Vincent's Hospital: "Parathyreoid Disorders", Dr. R. M. Biggins.
June 19, at Saint Vincent's Hospital: "Hæmorrhagic Diseases", Dr. J. Horan.
June 26, at the Royal Melbourne Hospital: "Chronic Diarrhœa", Dr. L. Hurley.

Applications for enrolment should be made to the Secretary of the Committee, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1 (telephones JM 1547 and JM 1548). The fee for the course is eight guineas. Those entitled to assistance under the Commonwealth Reconstruction Training Scheme are asked to indicate this fact. It is proposed to limit the class to 20.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

McCarthy, William Justin, M.B., 1945 (Univ. Sydney), 35, Montague Street, Goulburn.

Colman, John Victor Leonard, M.B., B.S., 1946 (Univ. Sydney), 233, O'Sullivan Road, Bellevue Hill.

The undermentioned, registered by the Medical Board of Victoria under the provisions of the *Medical Practitioner's Registration Act*, 1946, has applied for election as a member of the Victorian Branch of the British Medical Association:

Schatzki, Paul, M.D. (Univ. Frankfurt), M.D. (Univ. Pisa), 9, Westbury Grove, East St. Kilda.

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association:

Nancarrow, Malcolm Ewart, M.B., B.S., 1946 (Univ. Adelaide), 15, Stanley Street, Woodville.

Hawke, Vivian Lee, M.B., B.S., 1946 (Univ. Adelaide), 28, Unley Road, North Unley.

Nicholls, James Herschel, M.B., B.S., 1942 (Univ. Adelaide), Mt. Gambier, South Australia.

Australian Medical Board Proceedings.

TASMANIA.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Act*, 1918, of Tasmania, as duly qualified medical practitioners:

Vaughan, John Vincent, M.B., B.S., 1946 (Univ. Melbourne), Sorell.

Rose, Frederick Thomas, M.B., B.S., 1940 (Univ. Melbourne), Royal Hobart Hospital.

Pitney, William Robert, M.B., B.S., 1943 (Univ. Melbourne), Royal Hobart Hospital.

Piscatelli, Francesco, M.D., 1924 (Naples), New Norfolk.

Obituary.

WILLIAM CHRISTIAN DAISH.

WE regret to announce the death of Dr. William Christian Daish, which occurred on February 12, 1947, at Sydney.

THE FEDERAL MEDICAL WAR RELIEF FUND.

The following contributions to the Federal Medical War Relief Fund have been received:

New South Wales.

G. J. Duncan, J. F. S. McKee, £5 5s.
Total: £10 10s.
Grand total: £16,208 14s. 9d.

Books Received.

"Bacteria in Relation to Nursing", by C. E. Dukes, M.D., M.Sc., D.P.H.; 1946. London: H. K. Lewis & Co. Ltd. 8½" × 5½", pp. 194, with illustrations, some in colour. Price: 12s. 6d. net.

"The Adelaide Children's Hospital Pharmacopœia, A Children's Formulary and Medical Handbook"; Fourth Edition; 1946. Adelaide: The Children's Hospital, Inc. 5½" × 4¼", pp. 174. Price: 5s. post free, from the Pharmacy Department, Adelaide Children's Hospital, Inc., North Adelaide.

"Aids to Tropical Hygiene", edited by Lucius Nicholls, C.M.G., M.D., B.C., B.A. (Cantab.); Third Edition; 1946. London: Baillière, Tindall and Cox. 6½" × 4", pp. 229, with illustrations. Price: 6s.

"Literary Particles", by R. G. Howarth; 1946. Sydney, London: Angus and Robertson. 7¼" × 5", pp. 170. Price: 6s.

"Tuberculosis and Chest Disease for Nurses", by G. S. Erwin, M.D.; 1946. London: J. & A. Churchill Ltd. 8" × 5¼", pp. 244, with 39 illustrations. Price: 10s. 6d.

"Surgery of the Hand", by R. M. Handfield-Jones, M.C., M.S., F.R.C.S.; Second Edition; 1946. Edinburgh: E. & S. Livingstone Ltd. 10" × 7", pp. 176, with 104 illustrations, some in colour. Price: 20s. net.

"Illustrations of Anatomy for Nurses", by E. B. Jamieson, M.D.; Second Edition; 1946. Edinburgh: E. & S. Livingstone, Ltd. 8¾" × 6¼", pp. 12, with 64 coloured plates. Price: 8s. 6d. net.

"An Introduction to Social Biology", by Alan Dale, B.Sc.; 1946. London: William Heinemann Medical Books Ltd. 8¼" × 5¼", pp. 404, with many illustrations. Price: 15s. net.

Diary for the Month.

FEB. 25.—New South Wales Branch, B.M.A.: Ethics Committee.
FEB. 26.—Victorian Branch, B.M.A.: Council Meeting.
FEB. 27.—South Australian Branch, B.M.A.: Clinical Meeting.
FEB. 28.—Queensland Branch, B.M.A.: Council Meeting.
MARCH 3.—Federal Council of the B.M.A. in Australia: Melbourne.
MARCH 4.—New South Wales Branch, B.M.A.: Executive and Finance Committee. Special Groups Committee.
MARCH 5.—Victorian Branch, B.M.A.: Branch Meeting.
MARCH 5.—Western Australian Branch, B.M.A.: Council Meeting.
MARCH 6.—New South Wales Branch, B.M.A.: Special Groups Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.